1987

The Effects of Applicant Sex, Applicant Attractiveness, Rater Sex and Sex-Role Stereotype on the Evaluation of Applicants.

Nadia Ann Bugg
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THE EFFECTS OF APPLICANT SEX, APPLICANT ATTRACTIVENESS, RATER SEX AND SEX-ROLE STEREOTYPE ON THE EVALUATION OF APPLICANTS

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in

The Department of Administrative and Foundational Services

by
Nadia Ann Bugg
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M.A., Louisiana Tech University, 1979
August 1987

DEDICATION

This dissertation is dedicated to David A. Wagner, whose presence in my life has made so many things possible. He always believed in me and encouraged me to believe in myself. More than any other person he is responsible for the successful completion of this project.

ACKNOWLEDGEMENTS

It is with immense pleasure that I approach this page of my dissertation. There have been so many people who have contributed to this study and I am grateful for the opportunity to publicly thank them.

First, and foremost, I would like to express my sincere thanks to Dr. William Greenfield, my chairman during the course of this study and throughout my entire graduate program. I am truly grateful for his untiring patience, support, and understanding. He always challenged me to do my best. Special thanks are due to Dr. Diana Pounder and Dr. Greg Dobbins who gave far more than they were required to do. I am also indebted to my other committee members, Dr. Joseph Licata and Dr. Terry Geske, for their helpful suggestions and moral support.

I would like to take this opportunity to thank the administration of Northeast Louisiana University and especially Dean Kenneth R. Shrader, for providing me with the opportunity to pursue my graduate studies. A special thanks to Dr. Lonnie Bennett, my resident statistician, for his help with the analyses. I am grateful to Dr. Michael Ramsey, George Roberts, and Barbara Foss for their suggestions and comments. I sincerely appreciate the special efforts of Tonya Krone, Linda Davis, Victor Simoneaux, Doris Jones and all the students in radiologic technology. Their understanding and assistance made a major contribution to this study. To all of my friends, especially

Mary Anne Andrews and Gail Blackman, I would like to say thank you for always being there when I needed you.

I am also indebted to my fellow graduate students, Sue Street, Barbara LaCost, and Suzan Gaston for their encouragement and unfailing support during the course of this investigation and beyond.

And finally, I am most grateful to my parents, the late Howard and Evelyn Bugg, whose love gave me the strength, and whose guidance taught me the perseverance I needed to accomplish this task.

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ABSTRACT

This study was designed to test the main effects and interaction effects of applicant sex, applicant physical attractiveness, rater sex, and rater sex-role stereotype on the ratings of applicants in the screening phase of undergraduate student admission procedures. The participants were undergraduate students in the allied health sciences at a regional university in the southeast. The experimental task consisted of rating hypothetical applicants on overall suitability, a series of adjectives which reflect personality characteristics of the applicant, and assigning causal attributions for the past performance of the candidate. Each subject evaluated four hypothetical applicants: attractive male, unattractive male, attractive female and unattractive female.

The four independent variables yielded a 2 x 2 x 2 x 2 factorial design. Rater sex and sex-role stereotype were between-group factors and applicant sex and applicant attractiveness were repeated measures. Results of the repeated measures analysis of variance on the ratings of the candidate's overall suitability indicated that attractive applicants were rated higher than unattractive applicants; male applicants were rated higher than female applicants; and suitability ratings from female raters were significantly higher than the ratings from male raters. There was no main effect for the rater's sex-role stereotype. Analysis also revealed that there were two significant interactions which affected candidate ratings; the rater sex/applicant attractiveness interaction and the applicant sex/rater sex-role

stereotype interaction.

Analysis of the bipolar adjectives revealed that high levels of attractiveness were associated with positive traits and low levels of attractiveness were associated with negative traits. The analyses of the causal attributions revealed a significant main effect for applicant attractiveness on the ratings for ability, effort and luck. The past performance of attractive applicants was attributed to a higher level of ability and effort; the past performance of unattractive applicants was attributed more to luck.

CHAPTER I

NATURE AND SCOPE OF THE STUDY

Introduction

This chapter introduces the study by covering the background to the problem, the statement of the problem and the theoretical rationale for the approach to the problem. Terms used in the study are then defined and the significance of the results are discussed. The chapter concludes with a brief summary of each chapter.

Background to the Problem

Typically, the admission process for educational programs begins with a screening phase which utilizes information contained on the application form. Raters, who are often the same individuals who conduct the interview, screen applicants on the basis of information contained on the application form. Only those applicants who survive the screening phase progress to the interview phase. In this initial stage of the admission process when only limited information about the applicant is available, cognitive biases that the rater may possess are likely to be apparent. If these biases cause errors in judgment during the screening phase, it may prevent qualified applicants from reaching the interview stage where more information is available to the evaluator and the impact of biases may not be as great.

At present, there is a lack of data about cognitive biases that affect information processing in the screening phase of the selection

process. Research related to the screening phase of the selection process, when initial impressions are formed, has focused on a number of candidate characteristics and situational variables which have an impact on candidate evaluation. However, few studies have examined individual differences among raters and how these differences may interact with candidate variables to influence information processing associated with candidate evaluation.

Cognitive biases represent distortions in the rater's thought processes. These distortions are highly personal, based on past experiences of the rater and may result in judgments which are arbitrary and categorical. Such biases tend to be particularly active when there is only limited information available. Some people are more likely than others to use these cognitive biases when processing information about others. Therefore, differential evaluations of candidates may occur as a result of these individual differences among raters.

The belief that the candidate's sex and physical attractiveness influence candidate evaluation has been demonstrated in a number of studies (Dipboye, Arvey & Terpstra, 1977; Dipboye, Fromkin & Wiback, 1975; Greenwald, 1978; and Heilman & Saruwatari, 1979). However, researchers have tended to look at the effects of these variables on candidate evaluation without considering differences among raters. Individual raters may differ greatly in the nature and number of categories that they use to form impressions of others. For example, some individuals are more likely than others to categorize on the basis of sex and attractiveness. Cognitive biases associated with these

categories will then have an impact on the way the perceiver processes information. Thus, these individual differences will lead them to divergent impressions and judgments about the candidate.

Based on the above rationale, this study was designed to investigate the main effects and the interaction effects of candidate characteristics (gender and physical attractiveness) and rater characteristics (gender and sex-role stereotype) on the evaluation of candidates in the screening phase of undergraduate student admission procedures.

Statement of the Problem

The problem investigated in this study was posed in the following question: Do gender and physical attractiveness of candidates, and gender and sex-role stereotype of raters, systematically influence the evaluation of candidates in the screening phase of undergraduate student admission procedures?

The study sought to answer the following questions:

1) Does the applicant's level of attractiveness (attractive or unattractive) have an effect on applicant ratings?
2) Does the applicant's sex (male or female) have an effect on applicant ratings?
3) Does the rater's sex (male or female) have an effect on applicant ratings?
4) Does the rater's sex-role stereotype (traditional or non-traditional) have an effect on applicant ratings?
5) Is there any combination of applicant sex, applicant attractiveness, rater sex and sex-role stereotype which has a

significant effect on applicant ratings?

Theoretical Rationale for the Approach to the Problem

The study was guided by attribution theory and empirical findings on the associated cognitive processes involved in the psychological phenomenon of person perception. Basically, within the area of person perception, attribution theory attempts to explain the way in which a perceiver processes information about others and infers a causal explanation for the behavior of others.

Attribution theory originated with the work of Heider (1944, 1958) and was further refined by Jones and Davis (1965) and Kelley (1967). The theory is concerned with the perceived reasons that an individual uses to explain the cause of another's behavior. Since causes are not directly observable, we make inferences regarding what we perceive to have caused the behavior to occur. In this manner, we are then able to predict future behaviors and give meaning to our environment.

According to Heider (1958) any given behavior depends upon factors within the person (internal) and factors within the environment (external). Internal attributions are made for behavior that is explained in terms of the actor's disposition and external attributions are made for behavior that is explained in terms of situational factors. For example, if a student makes a perfect score on an examination, this behavior could be perceived as resulting from dispositional factors (ability, the amount of time spent studying) or situational factors (easy examination, liberal grading policy). Our judgment of this behavior will depend on whether we attribute the perceived cause to the person or to the environment.

Further refinement of Heider's analysis has been provided by Weiner (1980). He proposed that behavior in achievement situations can be attributed to four causes: ability, effort, task difficulty, and luck. These four causes represent an internal-external dimension and an added stable-unstable dimension. Ability and effort are seen as being within the person and thus internal, whereas luck and task difficulty are seen as being within the environment and are thus external. Ability and task difficulty are seen as being relatively stable over time, whereas effort and luck are seen as being relatively unstable or temporary. The causal inferences reached by a perceiver requires that various sources of information are used. Some information comes from what is available in the current situation, while other evidence comes from the perceiver's expectations which are based on past experiences. One antecedent which has been found to affect causal inferences reached by the perceiver is the gender of the actor. There is empirical evidence which suggests that achievement outcomes of males and females are perceived to be caused by different factors (Deaux & Enswiller, 1974; Deaux & Farris, 1977). Additionally, stereotypes held by the perceiver have also been shown to affect causal inferences.

Recently, Hamilton (1979) reported a line of research which applies the principles of attribution theory to the explanation of stereotyping. From this perspective, stereotyping is seen as a normal cognitive process which occurs when the perceiver makes inferences about a person based on his or her membership in some group. If the perceiver holds some stereotypic beliefs with reference to the

particular group, these beliefs may bias the processing of information and the attributions about members of that group (Hastorf, Schneider, and Polefka, 1970). From this theoretical orientation, stereotyping is explained in terms of differential perceptions which may result because of cognitive biases in the way we process information about others.

Categorization is an integral part of the stereotyping concept. In order to reduce the complexity of the stimulus world, the perceiver selects and organizes his perceptions in terms of categories. Thus, the process of categorization provides organization, promotes the retention of information, and influences the inferences and attributions a perceiver makes about a person. Closely related to the process of categorization and stereotyping is the concept of cognitive frameworks that the perceiver utilizes. Evidence provided by a growing body of research in social cognition has demonstrated that the perceiver will organize and interpret information about others based on existing cognitive structures. These cognitive frameworks or schemata are built on the perceiver's past experiences and are unique to the individual perceiver. These schemata have a major impact on the perception and categorization of others.

The concept of cognitive frameworks or schemata has been directly related to gender-based information processing by the work of Bem (1981). Based on the premise that perception is the interaction between the perceiver's preexisting schemata and the information available, research done by Bem (1981) suggests that some individuals use a gender-based schema to process information about others based on sex-linked associations. The results from these studies indicate that

sex-typed individuals engage in gender-based schematic processing more than non-sex-typed individuals.

The cognitive-attributional approach to the explanation of stereotyping has led other investigators to look at the development of cognitive biases which occur because of stereotypes held by the perceiver. This line of research provides evidence which suggests that not only do stereotypes bias the way we perceive others, but it is likely that they also influence our causal attributions regarding their behavior. For example, perceivers are prone to make internal, dispositional attributions when behavior is compatible with stereotypic expectations. In contrast, external, situational attributions are generally made when the behavior is not compatible with the perceiver's stereotypic expectations (Feldman-Summers & Kiesler, 1974; Deaux et al, 1974; Deaux, 1976).

While stereotypes help to create stability and meaning, they may do so at the risk of inaccuracy (Hastorf et al, 1970). This inaccuracy may be particularly evident in a first impression situation where only minimal information is available to the perceiver. Consequently, biases which result from stereotyping may have important implications for student selection procedures. Therefore, the present investigation was concerned with sex-related cognitive biases which may have an impact on candidate evaluation in the screening phase of the selection process.

Purpose of the Study

The purpose of this study was to examine the main effects and the interaction effects of candidate characteristics (gender and physical attractiveness) and rater characteristics (gender and sex-role

stereotype) on the ratings of candidates in the screening phase of undergraduate student admission procedures.

Significance of the Study

The significance of this study can be viewed from both a theoretical and a practical perspective. Based on the cognitive-attributional analysis of stereotyping, a study such as this contributes to our understanding of how sex-related biases affect information processing in first impression situations. More specifically, the study identifies the effect of individual differences among raters and how these differences affect the stereotyping process.

To date, most of the research on selection has focused on applicant characteristics which influence impression formation. Only a limited number of studies have investigated the effects of rater characteristics and how they may influence information processing. One such study by Markus (1977) demonstrated that there were individual differences among raters which affect the number and nature of categories that a perceiver uses. These findings suggest that the cognitive category used by one rater may be different from the cognitive category used by another rater, and that these differences may have a differential impact on impression formation. Consequently, raters with a traditional sex-role stereotype should encode, store, and recall information concerning males and females in a different manner than raters with a non-traditional sex-role stereotype.

Additionally, the results of this study will add to the growing body of literature on sex-related biases which have been found to exist in previous studies in other occupational fields. Past research on

sex-related biases has usually been limited to the selection process in employment settings. Those studies were usually concerned with applicants for positions which were typically recognized as predominantly male or female positions. Since the health profession used in this study is not associated with one sex more than the other, the present study adds to this line of research by investigating the effect of sex-related biases in a neuter setting.

On a practical level, the study helps to discern biases associated with a first impression situation which may have a negative impact on the screening phase of the selection process. Errors in judgment made during the initial screening phase could prevent qualified applicants from ever reaching the interview stage of the selection procedure. If it can be demonstrated that sex-related biases affect the evaluation of applicants, then we can employ formal education to call these problems to the attention of raters involved in screening applicants.

Definition of Terms

Physical Attractiveness

Physical attractiveness refers to an individual's degree of physical beauty. Physical attractiveness of the applicant is operationally defined as the combined rating a group of subjects assign to the applicant whose image appears on a black and white reproduction of a billford size photograph.

Stereotype

Stereotype is defined as a structured set of attributes associated with membership in a particular social category.

Sex-role Stereotype

Sex-role stereotype is defined as a set of inferential relationships which connect personal attributes to the social categories of male and female (Ashmore & Del Boca, 1979). They represent cognitive categories that the perceiver uses to guide the attention, storage and recall of information about males and females. For example, traits such as assertiveness and decisiveness are stereotypically associated with the category of males. Traits such as warmth and friendliness are stereotypically associated with the category of females. Additionally, those traits which are stereotypically associated with the category of males are more positively valued than those traits which are stereotypically associated with the female category. Operationally, the sex-role stereotype is defined as an individual's score on a sex-role stereotype scale. For the purpose of this study, the sex-role stereotype of the subjects will be assessed by the Bem Sex-Role Inventory (BSRI).

Traditional Sex-role Stereotype

Individuals with a traditional sex-role stereotype attribute positively valued traits to the social category of males and attribute negatively valued traits with the social category of females. For example, individuals with a traditional sex-role stereotype think women are more dependent, emotional, irrational, and ineffective than men (Broverman et al., 1972). Operationally, traditional sex-role stereotype is defined as a score on the Bem Sex-role Inventory (BSRI) which is above the median on the sex-congruent scale and below the median on the sex-incongruent scale.

Non-Traditional Sex-role Stereotype

Individuals with a non-traditional sex-role stereotype do not associate any one category (i.e. male or female) with traits which are more positively valued than those traits associated with the opposite category (Bem, 1981). Operationally, non-traditional sex-role stereotype is defined as a score on the Bem Sex-role Inventory (BSRI) which is above the median on both the sex-congruent scale and the sex-incongruent scale.

Physical Attractiveness Stereotype

Physical attractiveness stereotype refers to a set of attributes associated with an individual's degree of physical beauty. A high level of attractiveness is associated with positive traits and a low level of attractiveness is associated with negative traits (i.e. a "what is beautiful is good" thesis) (Berscheid & Walster, 1974).

Summary of the Chapters

Chapter I introduces the nature and scope of the study. This introduction includes a statement of the problem; the theoretical rationale for the approach to the problem; the theoretical and practical significance of the study; the definition of the terms relevant to the study; and a brief summary of each chapter contained in the study.

Chapter II contains a review of selected literature. The review of the literature begins with research on the selection process in general. It then narrows the focus to examine studies involving the stereotype phenomenon, with special emphasis on investigations dealing with sex-role stereotypes and physical attractiveness stereotypes.

Chapter III describes how the study was designed and conducted. This chapter includes the results of two pilot studies; a description of the participants; the preparation of the stimulus materials used in the study; the procedures for collecting data; the statistical analysis of the data; and a statement on the limitations of the study.

Chapter IV presents the results of the study. It includes the preliminary analysis on the evaluation instrument and the manipulation checks on the independent variables. The main analyses on the suitability ratings, the statistical analyses on the bipolar adjectives and the causal attributions are presented together with explanatory tables and graphs.

Chapter V contains a brief summary of the problem and the discussion of the study's results. It describes the methodological considerations and theoretical considerations relevant to the study and the conclusions.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

This chapter provides a review of selected literature. The review is divided into four parts: selection research, stereotype research, sex-role stereotypes, and attractiveness stereotypes. The literature on selection is important to the present study because candidate variables which affect decision-making in the interview stage of the selection process are expected to have similar effects on candidate evaluation in the screening phase. The literature related to stereotypes is included because sex-role stereotypes and attractiveness stereotypes are major independent variables in this study. The review of these variables will focus on the effects of these stereotypes on candidate evaluation.

Selection Research Relevant to the Current Study

While there has been a great deal of research on the selection process in general, and the selection interview in particular, issues related to the screening phase of the selection process have received less attention in the literature. Yet, the prescreening of applicants prior to the interview stage is a common practice when the number of applicants far exceeds the number of positions to be filled.

It is beyond the scope of this study to provide an in-depth review of the selection literature. However, it does seem appropriate to begin the literature review for the current study with some background

information on selection in general, since the variables used in this study were initially investigated in relation to decision-making in the interview stage.

Of all the selection criteria noted in the general selection literature, the personal interview has been identified as the procedure most often used in the selection process (Arvey & Campion, 1982). In an early survey concerned with the interview as a means of evaluating traits, Wagner (1949) noted the popularity of the interview as a selection procedure despite evidence which indicated its questionable reliability and validity. Later reviews of selection research by Mayfield (1964) and Ulrich and Trumbo (1965) reiterated these early concerns and questioned the use of the macroanalytic approach which had previously been used to establish the validity of the selection interview. Macroanalysis attempts to establish validity coefficients by correlating the interviewer's rating with some measure of job performance. Studies using the macroanalytic approach had yielded low validity coefficients and results which were not generalizable to other settings.

The Microanalytic Approach to Selection

These reviewers (Mayfield, 1964; Ulrich & Trumbo, 1965) proposed the use of a microanalytic approach to investigate the decision-making process as it occurs in the selection interview. In this approach, the interview is divided into small units for the purpose of studying a limited number of variables in a more controlled fashion. Thus, microanalysis would enable the researcher to examine specific variables which might systematically affect decisions made by interviewers.

Not all researchers were advocates of the microanalytic approach. Subsequent reviews by Wright (1969) and Schmitt (1976) were somewhat critical of the heavy reliance on microanalytic research designs. Wright urged a return to the macroanalytic approach in order to avoid the fragmentation of results associated with microanalysis. Similarly, Schmitt's review concluded that the results from such studies suffered from a lack of integration.

However, recent reviews by Arvey (1979) and Arvey and Campion (1982) indicate that research on the selection interview has continued in the microanalytic tradition, but with the use of more sophisticated research methods. Studies reviewed by these authors identified a number of variables and processes involved in selection procedures. Applicant characteristics and situational factors have all been the object of research efforts aimed at determining what factors produce or influence the interviewer's judgment. Characteristics associated with the rater have received far less attention in the selection literature. In summarizing the results of their extensive review of the selection literature, Arvey and Campion (1982) concluded that the interview was essentially a perceptual process. Therefore, future investigations could profit from research related to perceptual processes which might help to explain the differential evaluations that had been found to occur so often in the interview stage. Of particular interest to the current study, these investigators noted that the notion of stereotyping had frequently been used to account for differential evaluations, and yet, there were no studies identified which had fully examined the precise nature of how stereotypes operate and produce these differential

evaluations.

Factors Influencing Selection Decisions

Variables which have been found to influence interviewer's decision making can be generally divided into three categories: variables associated with applicant characteristics, situational variables, and variables associated with rater characteristics.

In his review of the selection literature, Arvey (1979) was primarily interested in studies which showed evidence of biases in the employment interview. One of the applicant characteristics which consistently affects interviewer evaluations is the sex of the applicant. Females are given lower evaluations than males even when both candidates are equally qualified for the position. These findings strongly suggest that the sex-related biases of the individual evaluator have a significant impact on the candidate's ratings.

One situational variable which has been found to intereact with applicant sex to influence ratings is the type of job for which the candidate is being considered. Evidence provided by Arvey demonstrated that females are given lower ratings for positions that are masculine in nature and males are given lower ratings for positions that are typically feminine in nature. This suggests that job type should be controlled for in studies which seek to examine the effects of applicant sex. To avoid a job type by applicant sex interaction, the present study was designed so that the position the candidate was to be considered for was neither stereotypically masculine nor feminine in nature. It was the influence of the individual rater's sex-related biases that were of primary concern in this study. Consequently,

variables which have been shown to interact with applicant sex have also been specifically controlled for in the study. For example, one known situational variable which Arvey found to interact with applicant sex was the applicant's qualifications. When the qualifications of the applicant were manipulated then the effects of applicant sex were greatly diminished.

Arvey's review identified several studies which investigated the effect of the applicant's level of attractiveness on applicant ratings. These findings indicate that attractive applicants are typically preferred to unattractive applicants regardless of sex.

In his conclusions, Arvey identified a number of research needs in relation to selection procedures. One, researchers need to focus on processes that contribute to biases in the interview stage. Two, more within-group designs need to be used in selection research because interviewers are prone to give differential evaluations even when presented with comparable stimulus material. Three, research on selection procedures needs to examine the method by which stereotypes affect interviewer judgments.

It is apparent from this discussion that there are a number of sex-related variables which have an impact on the interviewer's evaluation of candidates. However, in a face-to-face interview situation when the amount of information available to the evaluator is relatively unlimited, the effect of these variables should be diminished. In a first impression situation, such as the screening of application forms, the impact of the rater's characteristics is expected to be considerably greater. With little information to go on, the

rater is more likely to use existing cognitive categories to process information, form an impression and render an evaluation of the candidate. If there are biases associated with the categories used by the rater, differential evaluations of equally qualified candidates will occur.

Stereotypes and Related Research

Traditionally, the term stereotype has been broadly defined as a generalization about a group of people which distinguishes that group from others (McCauley et al 1980). This definition relates only to the content or structure of a stereotype. In a recent review of the history of stereotype research, Ashmore and Del Boca (1981) found that most of the early studies dealing with stereotypes did indeed endorse this traditional definition. Consequently, most of the initial empirical studies dealing with stereotypes lacked a theoretical base and tended to focus on the content of stereotypes associated with various racial, ethnic and national groups.

During these early years, the content of a stereotype for any given group was operationally defined as the set of adjectives which were most frequently assigned to that group. Because of the nature of these early studies and the methodological procedures used, most investigators came to the conclusion that the terms stereotype and prejudice were essentially equivalent concepts. In other words, from this traditional perspective stereotypes were viewed as generalizations based on group categories which resulted in a set of beliefs about the particular social group. These beliefs were implicitly assumed to be illogical, rigid, and detrimental to the manner in which the perceiver processed information

about individual members of that group. There is now a growing body of literature which provides substantial evidence that this early view of stereotypes is unjustifiably simple and does not address the process of stereotyping. (Stewart et al, 1979).

Cognitive-Attributional Processes Involved in Stereotyping

According to the theoretical orientation of contemporary researchers, stereotyping is seen as a normal cognitive process which acts to guide the attention, storage and recall of information about others (Hamilton, 1979). Man's sensory input system has a limited capacity. It is impossible for a perceiver to attend to everything in the environment at the same time or all at once. Consequently, the perceiver organizes stimuli in the environment in terms of categories. The nature and number of categories available for use will depend upon the existing cognitive frameworks that the individual perceiver uses for processing information. These cognitive frameworks, or schemata as they are often called, are based on the past experiences of the perceiver and have been shown to have a major impact on perception and categorization (Bem, 1981). Thus, similar to the phenomena which occurs in the perception of objects, person perception results from an interaction between the perceiver's preexisting schemata and the information available on the target person. When only limited information is available, the perceiver will attend to cues about the stimulus person and then make inferences about the person based on the perceiver's existing cognitive schemata. Why some stimuli are attended to rather than others is a function of the salience or distinctiveness of the stimuli cues. Two stimuli cues which are particularly salient to

the perceiver would be the sex and attractiveness of the individual. Thus, the same factors which account for the attending to and input of stimulus information, subsequently have an impact on information processing, as well as the future recall and interpretation of that information.

One of the first theoretical articles in stereotype research appeared in the late 1960's. In this article Tajfel (1969) offered a perspective of the stereotype concept which was different from the earlier traditional view. He suggested the use of a cognitive approach to the understanding of and explanation for stereotypes. Utilizing principles based on the broader domain of cognition, he argued that stereotypes should be regarded as normal cognitive structures that are not necessarily bad or different from other kinds of cognitive generalizations. This cognitive orientation to the explanation of stereotypes was based on the idea that people are essentially cognitive creatures, but with a limited capacity for processing information (Ashmore & Del Boca, 1981). It is this limited information processing capacity that makes the perceiver susceptible to systematic biases which may result in the formation and maintenance of stereotypes. It is the categorization process used by the perceiver and the differential attention to salient stimuli that account for this biasing effect (Hamilton, 1979). However, since the stimulus world of the perceiver is so complex, stereotypes do serve a normal cognitive function by reducing this complexity to a manageable state. This cognitive approach to the explanation of stereotypes shifted the research emphasis in stereotype studies from a content oriented focus

to a more process oriented focus.

Prior to this time, very little was known about the cognitive processes involved in stereotyping. A better understanding of this process became possible when research interest focused on a cognitive analysis of person perception and related these findings to the explanation of stereotypes and stereotyping (Hamilton, 1979). To date, however, the relative impact of stereotyping (Process) on applicant evaluation in the screening phase of the selection process has yet to be empirically demonstrated.

Sex-Role Stereotypes and Related Research

It was not until the 1970's that empirical research dealing with the subject of stereotypes began to reflect more of a theoretical perspective based on a cognitive approach (Ashmore & Del Boca, 1981; Stewart et al 1979; and Feldman, 1981). One of the reasons for this change was related to social groups which had not previously been the object of stereotype research studies. During this period of time researchers became interested in how men and women were perceived as separate social groups. This interest was largely the result of a comprehensive study on sex-role stereotypes by Broverman et al (1972). Evidence from this line of inquiry confirmed the existence of pervasive and persistent stereotypes regarding the traits attributed to men and women. Using an instrument they had developed for assessing sex-role stereotypes, these authors found that there was wide spread agreement among a large segment of the general population about the differing characteristics of men and women. Further, the results of their research demonstrated that those personal traits which were

stereotypically attributed to males were perceived to be more positively valued than the personal traits which were stereotypically attributed to females. Thus, the Broverman et al (1972) study provided substantial evidence on the content of sex-role stereotypes and, coupled with an increasing interest in the cognitive processes associated with stereotyping, had a major impact on stereotype research.

Bem's introduction of gender schema theory in 1981 provided further theoretical evidence for the explanation of processes involved in sex-role stereotypes. According to Bem (1981), individuals differ in their tendency to use gender as a basis for categorization. Since categories used by the perceiver are one source of bias in information processing, this point is particularly important to the explanation of sex-role stereotypes.

The theory proposes that those individuals who are highly sex-typed are more likely to categorize others on the basis of gender than are individuals who are non-sex-typed. Sex-typed individuals are defined by Bem as those who score above the median on the sex-congruent scale and below the median on the sex-incongruent scale of the Bem Sex-Role Inventory (BSRI). For example, males who score high on the masculine scale and low on the feminine scale and females who score high on the feminine scale and low on the masculine scale are described as highly sex-typed individuals. It is important to note that the masculine scale of the BSRI consists of traits which are stereotypically male and the feminine scale consists of traits which are stereotypically female.

According to gender schema theory, sex typing results, at least in part, from the fact that the individual's self-concept becomes

incorporated into their gender schema and accounts for the gender-based schematic processing these individuals use when forming impressions of others. To substantiate this fact, Bem conducted a series of studies which clearly demonstrate that sex-typed individuals do have a greater readiness to process information about others and about self in terms of a gender schema.

If those traits which are stereotypically attributed to men are more positively valued than those which are stereotypically attributed to women, then differential evaluations in selection procedures could result as a function of the applicant's sex. Evidence of such a pro-male bias has been demonstrated in a number of such studies in which male applicants were consistently rated higher than female applicants when the qualifications of the two groups were essentially the same (Simas & McCarrey, 1979; Rosen & Jerdee, 1974a, 1974b; Shaw, 1972; and Cohen & Bunker, 1975).

For example, Rosen and Jerdee (1974b) investigated the effect of sex-role stereotypes on the evaluation of candidates for managerial positions. They found that male applicants were consistently evaluated more favorably than equally qualified female applicants. Furthermore, there was a marked tendency for evaluators to reject female applicants when the job requirements were demanding and challenging.

To determine if males and females share these biases equally, a number of investigators have examined the effect of rater sex on the evaluation of male and female candidates. Results from these studies are not conclusive. Some investigators found no evidence of any sex-linked biases toward or against one's own sex (Deaux & Enswiller, 1974;

Elmore & LaPointe, 1974; and Del Boca & Ashmore, 1980), whereas similar studies by Muchinsky and Harris (1977) and Rose and Andiappan (1978) both found a significant main effect for rater sex.

One possibility which could account for these conflicting results in the evaluation of candidates might be a difference in the raters' sex-role stereotype. Raters with a traditional sex-role stereotype would be expected to use gender as a basis for categorization and to process information about the candidate in a manner consistent with the pervasive sex-role stereotype (i.e. pro-male bias). Whereas, raters with a non-traditional sex-role stereotype would not be expected to show evidence of this pro-male bias when evaluating candidates with similar qualifications. This hypothesis has yet to be explored.

One study was found that investigated the role of authoritarianism in raters' evaluation of male and female candidates in a job selection interview. Based on the notion that a pervasive adherence to stereotypes may be related to the personality characterisitic of authoritarianism, Simas and McCarrey (1979) hypothesized that raters with high authoriatarian characteristics, regardless of their sex, would rate male applicants more favorably than female applicants with equivalent qualifications. The data clearly supported the hypothesis. Findings demonstrated a strong relationship between a measure of the rater's authoritarianism and the differential evaluation of male and female applicants.

Other investigators have attempted to determine if there are specific situational factors which interact with sex to produce differential evaluations (Cohen & Bunker, 1975; Cash et al, 1977).

Results from these studies indicate that applicants applying for job positions which are stereotypically incongruent with their sex are given lower evaluation ratings, regardless of applicant sex. Thus, the type of job, or perhaps more specifically the gender classification of a job, may be a critical consideration which needs to be taken into account in studies which attempt to investigate the effects of sex-role stereotypes on candidate evaluation.

Causal Attributions Associated with Sex-Role Stereotypes

A number of studies have demonstrated that the performance of males and females are perceived to be caused by different factors and that perceived causality is related to the sex-stereotypic expectations of the observer (Deaux & Enswiller, 1974; Deaux & Farris, 1977; Feldman-Summers & Kiesler, 1974; Cash, Gillen & Burns, 1977). When the behavior of males and females is based on a set of stereotyped expectancies, the resultant attributions will differ to the extent that the stereotyped expectancies differ.

Deaux and Enswiller (1974) conducted a study to determine if equivalent performances by males and females would be attributed to the same cause. Their findings indicated that people assign different causes to the explanation of identical performances by males and females. Success on a masculine task is more likely to be attributed to ability for a male and to luck for a female. However, the reverse condition on a feminine task did not hold true. These findings were replicated in a similar study by Cash, Gillen and Burns (1977).

Thus far, the studies reviewed indicate that sex of applicant and sex of rater influence candidate evaluation, and that these effects may

be mediated by the type of position. Additionally, the choice of attributions for males and females appears to be directly related to the stereotypic expectations of the rater. Thus, the notion that sex-role stereotypes of raters are responsible for differential evaluations has been suggested in a number of studies, but it has yet to be clearly illustrated by empirical findings.

Stereotypes Related to Attractiveness

A person's level of physical attractiveness is one of the obvious stimulus cues available to the perceiver. This cue may be particularly important in situations where there is limited information available about the person. When a perceiver attends to attractiveness as a cue and makes inferences about the other based on this cue, they are said to be utilizing a physical attractiveness stereotype to process information about the other. A number of studies have examined the content and consequences of a physical attractiveness stereotype.

Biases Associated with Attractiveness Stereotypes

To determine the role of physical attractiveness in impression formation, Miller (1970) conducted a study in which male and female raters were asked to indicate on an adjective checklist their impressions of individual photographs which had previously been rated as high, moderate, or low in physical attractiveness. Findings from this study indicated that high attractiveness was consistently associated with positive traits and that low attractiveness was consistently associated with negative traits. Based on these results, Miller (1970) concluded that physical attractiveness was a strong

determinant of first impressions. Furthermore, he identified a number of significant effects based on the sex of the stimulus person. These effects indicated that the sex of the stimulus person influenced the perceiver's impression in a manner consistent with sex-role stereotypes. For example, males were perceived as more assertive and more competitive than females, regardless of their level of physical attractiveness. An interaction between sex and attractiveness clearly demonstrated that a stimulus person's sex is also a strong determinant of first impressions. However, as the level of physical attractiveness decreased, results showed that the stimulus person's sex became a more influential impression determinant.

Since Miller's (1970) initial study, there has been an increasing amount of research evidence which attests to the existence of a physical attractiveness stereotype (Cash et al, 1975; Landy & Sigall, 1974; and Goldman & Lewis, 1977).

Dion et al (1972) designed one such study to investigate the effects of a physical attractiveness stereotype. On the basis of black and white photographs which were previously determined to be high, moderate, and low in physical attractiveness, subjects were asked to assess the stimulus person on personality traits, life experiences, and potential for occupational success. The results were compatible with a physical attractiveness stereotype which was not substantially different for male and female subjects. Attractive individuals, regardless of sex, were assumed to possess more socially desirable personality traits, expected to lead happier lives, and to be more likely to be professionally successful than unattractive individuals.

Several important conclusions can be derived from the preceding studies. One is that an individual's physical attractiveness represents a salient cue which is accessible to the perceiver. A second conclusion is that physical attractiveness is particularly important as a stimulus cue in first impression situations. Thirdly, the physical attractiveness stereotype may produce biases in the way that a perceiver processes information about others. For these reasons, it is expected that the physical attractiveness of an applicant will have its most influential effect on the evaluation of a candidate in the screening phase of the selection process when there is only limited information available to the perceiver. A series of studies, across a number of occupational settings, support the notion of such a physical attractiveness bias.

Both professional interviewers and college students evaluated applicants for a managerial position in a study by Dipboye et al (1975). Participants rated resumes consisting of written material and a photograph on 12 hypothetical candidates. The applicant's sex, physical attractiveness and scholastic standing were varied on the resumes. Both groups of evaluators preferred males to females, attractive to unattractive, and applicants with high scholastic standing to applicants with low scholastic standing. Scholastic standing accounted for the largest percentage (34%) of the variance in the ratings of overall suitability. However, when participants were asked to rank the candidates, sex and attractiveness were found to be relatively important in decisions regarding the ranking of candidates with equal scholastic standing.

Dipboye, Arvey and Terpstra (1977) expanded the earlier design to include sex and attractiveness of the interviewer as between group factors. Sex, physical attractiveness, and scholastic standing of the applicant were again manipulated with similar results. No effects were found for rater sex or rater attractiveness. A significant interaction between applicant sex and applicant attractiveness indicated that highly attractive males were rated higher than highly attractive females and unattractive males were rated higher than unattractive females. When evaluators were asked to select the one candidate they would hire from the total applicant pool, a pro-male bias and a pro-attractiveness bias became clearly evident.

Cash et al (1977) conducted a study to determine if type of job interacts with sex and attractiveness to influence candidate evaluation. Professional interviewers rated the suitability of one hypothetical applicant for each of six potential positions which had previously been determined as masculine, feminine, or neuter jobs. Jobs selected for inclusion in this study were occupations of low to moderate prestige rather than upper level managerial positions. Attractive applicants were preferred to unattractive applicants, regardless of sex, when under consideration for a position designated as neuter. Attractive males were preferred over attractive females for masculine jobs. For jobs designated as feminine, attractive females were preferred over attractive males. Data support the notion that physical attractiveness exaggerates perceptions of gender-related attributes which have been found to exist in other studies (Gillen, 1981). Attractive women are regarded as more feminine than unattractive women and attractive men are regarded as more

masculine than unattractive men.

If attractiveness influences assumptions about the extent to which an applicant possesses gender-related attributes, then the more attractive a woman is, the less likely it is that she will be judged suitable to occupy a position which is sex-incongruent. To test this hypothesis, Heilman and Saruwatari (1979) conducted a study to determine the effects of sex and attractiveness on the evaluation of applicants for managerial and non-managerial positions. Managerial positions were specifically selected because previous research (Schein, 1973, 1975; Massengill & Di Marco, 1979) has demonstrated that managerial positions are assumed to require characteristics which are stereotypically attributed to males. Results strongly supported the researchers' predictions. Attractive males were preferred to unattractive males, regardless of job type. Attractive females were preferred to unattractive females, only for sex-congruent jobs (non-managerial). Whether attractiveness is an advantage or a disadvantage to female applicants depends on the type of job.

Applicant attractiveness may only be advantageous in situations where attractivenss is viewed as a job-relevant factor. Beehr and Gilmore (1982) conducted a study to determine if these two factors interacted to affect interviewers' decisions. Their findings showed that applicant attractiveness was not an advantage for jobs in which attractiveness was not relevant; however, being unattractive was never an advantage regardless of whether attractiveness was job-relevant or not.

Cann et al (1981) conducted a study to determine if the

discriminatory effects of physical attractiveness and applicant sex could be reduced if the interviewers were forced to postpone their hiring decision until after they had rated specific applicant qualifications. Results indicated that the forced delay in the interviewers' decision did not diminish the biases toward attractive male applicants.

Summary

This review of the literature shows that a great deal of research has been done in relation to sex-role stereotypes and physical attractiveness stereotypes. The content of the sex-role stereotype has been clearly defined and indicates that traits stereotypically attributed to males are perceived to have a strong positive value, while those which are stereotypically attributed to females are perceived to have a more negative value. The content of a physical attractiveness stereotype implies that positive traits are associated with attractiveness and that attractiveness exaggerates gender-related attributes. While the content of these two stereotypes has been clearly established, very little research has been done on the process of stereotyping and how this process affects impression formation and subsequent judgments.

Individuals differ greatly in their use of stereotyping. These individual differences may be apparent in the differential evaluation of applicants. Some raters are more likely than others to use stereotyping as a basis for processing information about others. For example, sex-typed raters are more likely to categorize others on the basis of sex and sex-related characteristics, such as attractiveness. With little additional information to go on, the rater is likely to make

inferences about the individual in keeping with a traditional sex-role stereotype. Non-sex-typed raters would be expected to process information about the individual in a different manner. Thus, different raters will render different evaluations of the same individual.

Both of these variables, sex-role stereotypes and attractiveness stereotypes, have been investigated in a number of studies dealing with candidate evaluations in an employment setting. It has been shown that both variables have an impact on these evaluations; however, the factors which mediate these effects have not been thoroughly established.

CHAPTER III

METHODOLOGY OF THE STUDY

Introduction

This chapter describes how the study was designed and conducted. The results of two pilot studies which describe the development of the stimulus materials are presented first. The methodology used in the main study is then presented under the following headings: participants, research design, instrumention, procedures, statistical analysis and limitations.

Results of Pilot Studies

Two pilot studies were conducted prior to the main study. The first pilot study was performed to determine the level of physical attractiveness of the applicants. The second pilot study was designed to validate the rating instrument that was used to measure the raters' evaluations of the hypothetical candidates and to establish the comparability of the four application forms used in the main study.

In the initial pilot study 60 pictures of Caucasian male and female subjects were obtained from a recent yearbook of a distant high school. Thirty photographs were of female subjects and 30 were of male subjects. Xeroxed copies of the 60 photographs were prepared and presented to a class of 32 female nursing students in an undergraduate research course at a regional university in the southeast. Each participant was asked to rate each of the sixty photographs on a nine point Likert-type scale. The points on the scale were indicated as: 1-extremely unattractive,

2-very unattractive, 3-somewhat unattractive, 4-slightly unattractive, 5-average, 6-slightly attractive, 7-somewhat attractive, 8-very attractive, and 9-extremely attractive. With a copy of the 60 photographs, each participant received a rating scale and the instructions which appear in Appendix A.

To reduce the influence that clothing and other physical characteristics might have on ratings of physical attractiveness, all male and female subjects depicted in the black and white photographs wore similar casual attire and no eye glasses. All subjects appeared to be smiling. The mean and standard deviation for each of the 60 photographs was calculated. Inter-rater agreement was $r = .96$.

On the basis of the preliminary statistical analysis, 16 photographs were selected for use in the main study. The eight photographs with the highest means and lowest standard deviations were selected to represent the attractive applicants. To represent unattractive applicants, the eight photographs with the lowest means and lowest standard deviations were selected. These 16 photographs were then sorted into the following groups of four each: attractive males, unattractive males, attractive females, and unattractive females.

Statistical analyses were performed on the four groups of photographs using a t test for independent samples. Results indicated that there was a significant difference in the ratings for attractive males versus unattractive males ($t = 4.15$, $df = 6$, $p < .01$). Ratings for the attractive females in comparison to the unattractive females were also significantly different ($t = 2.78$, $df = 6$, $p < .05$). There was no significant difference between the ratings for attractive females versus

attractive males ($t = .08$, $df = 6$, $p > .05$) or for unattractive females versus unattractive males ($t = .86$, $df = .86$, $df = 6$, $p > .05$). The means and standard deviations for the 16 photographs used in the study appear in Appendix B. Inter-rater agreement for these 16 photographs was $r = .85$.

The second pilot study was designed to validate the rating instrument, the Candidate Evaluation I Form. Twenty-eight professional educators in radiologic technology who were knowledgeable in admission procedures for undergraduate students in health science programs participated in the study. There were 15 females and 13 males with an average of 8.39 years of experience. Descriptive statistics on all respondents in the second pilot study are presented in Appendix C.

Each participant received an evaluation form, one of the four completed application forms, and the instructions which appear in Appendix D. To reduce the influence that physical attractiveness and applicant sex might have on ratings of the candidate, the name and photograph of the applicant were omitted from the application forms in the pilot study.

Development of Stimulus Materials

Standard application forms were used to create four equivalently qualified hypothetical candidates. Each application form contained responses to questions about demographic characteristics, educational qualifications, work experience, and a brief statement by the applicant as to why he/she chose radiologic technology. Equivalence was created by varying this information within a very small range. For example, the candidate's overall grade point average was varied between 2.67 and

2.89. The candidate's science grade point average was varied between 2.68 and 2.88. A higher grade point average on one, was paired with a lower grade point average on the other for each of the four candidates. Each participant in the second pilot study evaluated only one of the four application forms.

A one-way analysis of variance was performed to determine if the four hypothetical candidates were perceived as equivalently qualified. The results of the analysis indicated that there was no significant difference among the four hypothetical candidates ($F = 1.67$, $df = 3.27$, $p > .05$).

Statistical analyses were performed to establish the reliability and validity of the evaluation instrument. Reliability results indicated a Cronbach coefficient of consistency of .80. The validity of the evaluation form was established by correlating the mean score of questions 1 through 4 (the major dependent variable) with the responses to the overall evaluation item (Question #5) and the recommendation for admission item (Question #6). The correlation of the mean score on questions 1 through 4 with the responses to the overall evaluation item resulted in a validity coefficient of .83. The correlation of the mean score on questions 1 through 4 with the responses to the recommendation for admission item resulted in a validity coefficient of .77. The correlation between the overall evaluation item and the recommendation for admission item yielded a correlation coefficient of .68.

Participants

Undergraduate students enrolled in health science programs at a regional university in the southeast were recruited to participate in the

main study. Participants were given extra credit for completing the experimental task. Only undergraduate students in health science programs were selected to participate, since those students typically have personal experience with the screening phase of the selection process for admission to the professional program. All health science areas represented in the sample have a similar type of screening procedure.

The experimental task consisted of two parts. In the first part, 240 participants were asked to complete the Bem's Sex-Role Inventory (BSRI). The results from the BSRI were used to group the participants into four categories based on their individual scores. The four categories were: (1) males with a traditional sex-role stereotype (TM), (2) males with a non-traditional sex-role stereotype (NM), (3) females with a traditional sex-role stereotype (TF), and (4) females with a non-traditional sex-role stereotype (NF). From this total pool of participants, 15 subjects in each category were randomly selected. Only the research data from these 60 participants were used for the data analysis in this study.

In the second part of the experimental task, each participant was asked to evaluate 4 hypothetical applicants (attractive/male; unattractive/male; attractive/female; and unattractive/female) for admission to the professional phase of the radiologic technology program.

Research Design

The research design for this study was a 2 x 2 x 2 x 2 factorial, with the independent variables being applicant sex (male or female), applicant attractiveness (attractive or unattractive), rater sex (male

or female), and rater sex-role stereotype (traditional or non-traditional). Rater sex and sex-role stereotype were between-groups factors and applicant sex and physical attractiveness were repeated measures factors. The major dependent variable was the evaluation of the applicant. Operationally, the major dependent variable was defined as the mean score from the responses to questions 1 through 4 on the Candidate Evaluation I Form.

Instrumentation

Measurement of Sex-Role Stereotypes. The rater's sex-role stereotype was assessed with the Bem Sex-Role Inventory (BSRI). The psychometric analyses reported in the professional manual indicate that the instrument is highly reliable. Coefficient alphas for the BSRI are .75 for females on the Femininity scale and .87 for males on the Masculinity scale. The test-retest reliability for the BSRI ranges from a low of .76 to a high of .94. The construct validity of the instrument is supported by a number of empirical studies (Abrahams, Feldman & Nash, 1978; Deaux & Majors, 1977; and Taylor & Hall, 1982).

The BSRI consists of sixty adjectives and phrases which are printed on a single sheet of paper. This single sheet includes written instructions and space for personal information about the subject. Subjects were asked to rate themselves on 20 traits which are stereotypically feminine (i.e. "affectionate", "warm", "tender"), on 20 traits which are stereotypically masculine (i.e. "dominant", "assertive", "aggressive"), and 20 traits which serve as filler items. Each subject was asked to indicate on a 7-point scale how well each trait described himself or herself. The scale ranged from 1 ("never

or almost never true") to 7 ("always or almost always true"). The subject's score was the total sum of the ratings for each scale, divided by the number of items on that scale. Thus, each subject received both a masculinity and femininity score. A median-split technique was then used to divide the respondents into two major groups. Those who scored above the median on the sex-congruent scale and below the median on the sex-incongruent scale are defined as sex typed. Highly sex-typed individuals use gender-based schematic processing to form impressions of others and of self (Bem, 1981). Therefore, for the purposes of this study highly sex-typed individuals were labeled as having a traditional sex-role stereotype and non-sex-typed individuals were labeled as having a non-traditional sex-role stereotype.

Female subjects who scored 4.90 or above on the femininity scale and 4.95 or below on the masculinity scale were labeled as female raters with a traditional sex-role stereotype. Male subjects who scored 4.90 or below on the femininity scale and 4.95 or above on the masculinity scale were labeled as male raters with traditional sex-role stereotypes. Male and female subjects who scored 4.90 or above on the femininity scale and 4.95 or above on the masculinity scale were labeled as male or female raters with non-traditional sex-role stereotypes.

Development of the Application Forms. The 16 photographs obtained from the first pilot study were used to develop the four application forms needed in the study. A minimum of 16 pictures were needed since using the same picture on each application form could cause specific characteristics of the individual picture to be confounded with the manipulation of the physical attractiveness variable. Pictures were

then systematically rotated among the four application forms so that the content of any one application form would not be confounded with the manipulation of the attractiveness variable. Then the four application forms were randomly placed in the research packet in order to prevent the occurrence of order effects. This procedure has been used in similar studies investigating the effects of physical attractiveness (Dipboye et al, 1977; Heilman & Saruwatari, 1979). The four applications forms are contained in Appendix E.

Measurement of Candidate Evaluation. A researcher designed evaluation form was constructed for subjects to use in rating the suitability of the hypothetical applicant for admission to the educational program. Items 1-4 on the evaluation form utilize a seven point Likert-type scale to rate the candidate in each of the following areas: (1) suitability for the interview stage of the admission process, (2) potential for academic success in the educational program, (3) suitability for the educational program, (4) potential for success in the profession. The mean score on these four items was used as the major dependent variable for the study.

Item 5 asked participants to indicate their overall evaluation of the candidate on a similar seven point Likert-type scale. Item 6 asked participants for their recommendation on the candidate for admission to the professional phase of the educational program. Items 5 and 6 were compared to the mean score on items 1-4 to establish the concurrent validity of the major dependent variable.

The second part of the evaluation form (Items 7-17) asked participants to rate the applicant on each of 11 bipolar adjectives:

unfriendly-friendly (Item 7), decisive-indecisive (Item 8), cold-warm (Item 9), attractive-unattractive (Item 10), logical-illogical (Item 11), emotional-unemotional (Item 12), masculine-feminine (Item 13), assertive-unassertive (Item 14), likable-unlikable (Item 15), noncompetitive-competitive (Item 16), and motivated-unmotivated (Item 17).

The third part of the evaluation form asked the subjects to indicate whether the applicant's past performance was due to high ability, high effort, good luck or easiness of the pre-professional program. Each attribution for the applicant's past performance was indicated on a seven point Likert-type scale. The points on the scale ranged from 1-Very little, through 4-Moderately, to 7-Very much. These evaluation forms are included in Appendix F.

Instructions to the Raters. In order to standardize the raters' perception of the experimental task, all raters were asked to read a brief description of the admission requirements for the educational program. The description described the minimum criteria for admission into the educational program. Additionally, subjects were instructed that there were a limited number of spaces available in the educational program and that the total number of applicants which met the minimum requirements for admission had far exceeded the number of spaces available. Further, subjects were instructed that each applicant had been prescreened for acceptability of minimal educational and background qualifications. Instructions for the raters are included in Appendix G.

Procedures

Each subject was presented with a research packet containing the

BSRI and xeroxed copies of four equivalently qualified candidate's applications for admission to an educational program in the allied health sciences. After completing the BSRI, subjects were asked to rate each hypothetical applicant on the accompanying evaluation forms. Finally, the subject was asked to complete a questionnaire developed to collect demographic information of the study participants.

Subjects were run in groups of 20 to 40 over a two week period of time. Experimental assistants, either male or female, were randomly assigned to sessions to prevent a sex confound. Subjects completed the experimental task in approximately 30-45 minute periods. Following the completion of the experimental task, subjects were thanked for their participation and asked not to discuss the procedure until all data had been collected.

Statistical Analysis

The main analyses on the applicant ratings were analyzed by using a 2 x 2 x 2 x 2 repeated measures analysis of variance. Tests for all main effects and interactions were conducted. The SPSS computer program was used to carry out the statistical analysis. If warranted, post hoc comparisons using the Newman-Keuls method were also made for each significant interaction. For each man effect and interaction determined to be significant, the proportion of variance accounted for was determined by calculating omega^2. The following hypotheses were tested:

1) There is no significant difference in the ratings of attractive applicants and the ratings of unattractive applicants.

2) There is no significant difference in the ratings of male applicants

and the ratings of female applicants.

3) There is no significant difference in the ratings of applicants from male raters and the ratings of applicants from female raters.

4) There is no significant difference in the ratings of applicants from raters with traditional sex-role stereotypes and the ratings of applicants from raters with non-traditional sex-role stereotypes.

5) There is no combination of applicant sex, applicant attractiveness, rater sex and rater sex-role stereotype which has a significant effect on the rating of applicants.

Analyses of the bipolar adjectives and the attributions for the past performance of the applicants were computed using a 2 x 2 x 2 x 2 analysis of variance with repeated measures. For each significant main effect and interaction, the amount of variance explained by the effect was determined by omega^2. Additionally, each significant interaction was examined by post hoc comparisons using the Newman-Keuls procedure to determine where the differences between the means were located. Descriptive statistics were calculated and reported on the demographic information from the study participants.

Limitations of the Study

There are several limitations to this study. One of these limitations is concerned with the selection of participants. Since undergraduate students were used as participants, the generalizability of results is limited. However, evidence exists which demonstrates that the threat to generalizability is minimal. Bernstein, Hakel and Harlan (1975) found that there was no difference in the results from studies using students as subjects rather than professional interviewers except

for the fact that students were more lenient in their ratings of the applicants.

Second, since the participants in the study were volunteers, their responses may not be representative of the population as a whole. The use of such volunteers may have resulted in participants who were inclined to be more cooperative and somewhat less critical in their evaluation of the applicants. These factors place limitations on the external validity of the findings.

Finally, there is some question regarding the extent to which the experimental task used in the study may have been perceived as artificial. In order to make the experimental task as realistic as possible, subjects were informed that the allied health science programs in the university were considering the possibility of having students participate as active members of admission committees. Thus, the present experiment was being conducted to determine how good students were at evaluating applicants in comparison to existing members of the admission committees. It is assumed that these instructions added realism to the experimental task.

CHAPTER IV

RESULTS

Introduction

This chapter presents the results of the study. The first section of the chapter presents the results of the preliminary analysis on the manipulation of the experimental variables and the reliability and validity of the evaluation instrument. The second section contains the results of the main analysis that was conducted on the major dependent variable. The final section shows the results of the repeated measures analysis of variance that was conducted on the bipolar adjectives and attributions for past performance.

Preliminary Analysis

Evaluation Instrument

Statistical analyses were performed to verify the reliability and validity of the evaluation instrument. Reliability results indicated a Cronbach coefficient of consistency of .81. The concurrent validity of the evaluation form was established by correlating the mean score of the suitability ratings with the responses to the overall evaluation item and the recommendation for admission item. The correlation of the suitability ratings mean with the responses to the overall evaluation item resulted in a validity coefficient of .86. The correlation of the suitability ratings mean with the responses to the recommendation for admission item resulted in a validity coefficient of .84.

Manipulation Check

In order to determine if the experimental manipulations of applicant sex and level of attractiveness were successful, two of the bipolar adjectives included in the study were physically attractive (1)-physically unattractive (7) and masculine (1)-feminine (7). The means for attractive and unattractive applicants were 1.94 and 5.90 respectively, $F(1,239)=966.05$, $p < .001$. The means for male and female applicants were 1.85 and 6.05 respectively, $F(,1239)=1099.03$, $p < .001$. Therefore, the experimental manipulations of applicant sex and level of attractiveness were successful.

To determine if the application forms were perceived to be equivalent, an analysis of variance was performed on the ratings on the four application forms. The means for the four forms were 5.65, 5.62, 5.55, and 5.59 respectively, $F(1,239)=.15$, $p > .05$. Thus, the application forms were perceived to be equivalent. These results are in keeping with the results found in the pilot study.

Main Analysis of Suitability Ratings

A 2 x 2 x 2 x 2 repeated measures analysis of variance was performed on subjects' ratings of the suitability of applicants. The results are presented in Table 1. Significant main effects were observed for rater sex [$F(1,56)=3.95$, $p < .01$], applicant sex [$F(1,56)=3.95$, $p < .05$], and applicant attractiveness [$F(1,56)=78.60$, $p < .001$].

The main effect for rater sex indicated that the ratings from female raters ($M=5.75$) were higher than the ratings from male raters ($M=5.44$). The main effect for applicant attractiveness suggested that

Table 1

Repeated Measures Analysis of Variance on Suitability Ratings

Source	df	MS	F	w^2
Between-Subjects 59				
Rater Sex (C)	1	5.63	9.01*	.12
Stereotype (D)	1	1.46	2.34	
C x D	1	.08	.12	
Error-Between	56	.62		
Within-Subjects 60				
Applicant Sex (A)	1	.68	3.95*	.04
C x A	1	.14	.80	
D x A	1	.97	5.65*	.07
C x D x A	1	.16	.95	
Error-Within	56	.17		
Within-Subjects 60				
Attractiveness (B)	1	46.60	78.60**	.52
C x B	1	5.48	9.24*	.05
D x B	1	.58	.97	
C x D x B	1	1.39	2.34	
Error-Within	56	.59		
Within-Subjects 60				
A x B	1	.04	.22	
C x A x B	1	.11	.57	
D x A x B	1	.58	2.88	
C x D x A x B	1	.06	.29	
Error-Within	56	.20		
Total 239				

* $p < .05$
** $p < .001$

attractive applicants (M=6.04) were rated significantly higher than unattractive applicants (M=5.16). The main effect for applicant sex demonstrated that male applicants (M=5.65) were rated significantly higher than female applicants (M=5.54). The mean suitability ratings for each applicant type by rater sex and sex-role stereotype are presented in Table 2.

The interaction between rater sex and applicant attractiveness was statistically significant $F(1,56)=9.24$, $p < .01$. The interaction was graphed and is presented in Figure 1. A Newman-Keuls multiple means comparison was computed to determine where the significance in the interaction was located. The results of the Newman-Keuls procedure are presented in Table 3. The results show that attractive applicants were rated higher than unattractive applicants regardless of the rater's sex. Unattractive applicants were rated significantly higher by female raters (M=5.47) than by male raters (M=4.86). However, there was no significant difference in the ratings of attractive applicants from male (M=6.04) and female (M=6.05) raters.

A significant finding was also produced for the applicant sex/rater sex-role stereotype interaction, $F(1,56)=5.65$, $p < .05$. The Newman-Keuls procedure did not detect any significant difference between the compared means. This would indicate that the total combination of variables was sufficiently different to produce a significant effect but when the individual means were compared in the post hoc analysis, the difference was not great enough to be significant. Results of the Newman-Keuls test are shown in Table 4.

The fact that none of the post hoc comparisons were statistically

Table 2

Means and Standard Deviations of Suitability Ratings for Each Candidate

Applicant		Rating: Traditional SRS Male	Traditional SRS Female	Non-Traditional SRS Male	Non-Traditional SRS Female	Grand Mean
Attractive Male	X	5.86	6.08	6.30	6.10	6.08
	SD	(.694)	(.556)	(.465)	(.541)	
Unattractive Male		4.98	5.65	4.78	5.51	5.23
		(.678)	(.549)	(.452)	(.637)	
Attractive Female		5.78	5.95	6.23	6.06	6.00
		(.876)	(.656)	(.467)	(.522)	
Unattractive Female		4.80	5.11	4.88	5.60	5.09
		(.941)	(.442)	(.823)	(.480)	
Grand Mean		5.35	5.69	5.54	5.81	

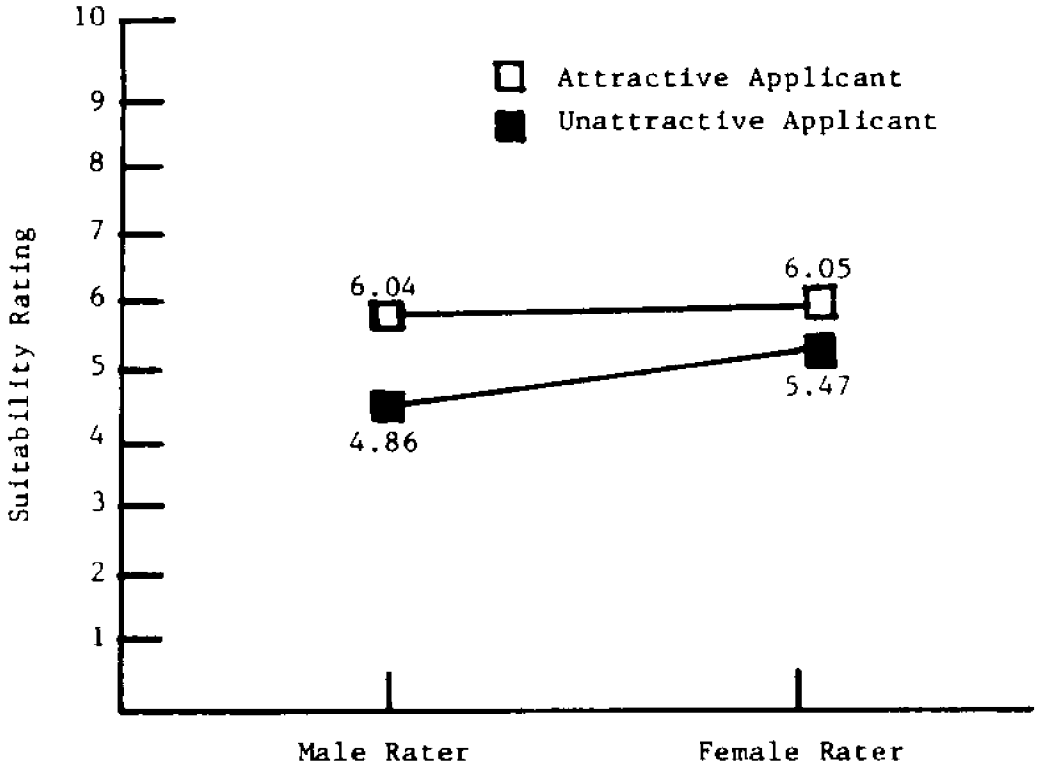

FIGURE 1. Means of suitability ratings as function of rater sex and applicant attractiveness.

Table 3

Results of Newman-Keuls Procedure: Rater Sex and Applicant Attractiveness Interaction on Suitability Ratings

Group	2 (FR/A)	1 (MR/A)	4 (FR/U)	3 (MR/U)
Mean	6.05	6.04	5.47	4.86

$p < .05$

FR/A=Female rater, attractive applicant
MR/A=Male rater, attractive applicant
FR/U=Female rater, unattractive applicant
MR/U=Male rater, unattractive applicant

Table 4

Results of Newman-Keuls Procedure: Applicant Sex and Rater Stereotype Interaction on Suitability Ratings

	FN	MN	MT	FT
	5.69	5.67	5.64	5.41
FN 5.69	X	.02	.05	.28
MN 5.67		X	.03	.26
MT 5.64			X	.23
FT 5.41				X

F = Female Applicant
M = Male Applicant

N = Non-traditional Sex-Role Stereotype Rater
T = Traditional Sex-Role Stereotype Rater

significant for the applicant sex/rater sex-role stereotype interaction is unusual, but not unprecedented. According to Hays (1973) the presence of a significant overall F ratio does not mean that the researcher will necessarily find the significant comparisons, but only that they exist to be found. A less conservative post hoc comparison would be expected to demonstrate a significant difference. However, a less conservative test increases the probability of committing a Type I error when making comparisons. Therefore, the decision to employ the Newman-Keuls test was based on the researcher's desire to minimize the probability of committing a Type I error when making comparisons among the means.

Analysis of Bipolar Adjectives

A 2 x 2 x 2 x 2 repeated measures analysis of variance was performed on the ratings for the bipolar adjectives. Results of these analyses are presented in Table 5. All significant interactions were examined with the Newman-Keuls multiple comparison procedure. For each main effect or interaction determined to be significant at the .001 level, the proportion of variance accounted for was determined by omega^2.

Unfriendly/Friendly. As shown in Table 5, there is a significant main effect for applicant attractiveness and a significant interaction between rater sex, applicant sex and applicant attractiveness. The main effect for applicant attractiveness was due to the fact that attractive applicants (M=5.82) were perceived as friendlier than unattractive applicants (M=4.45). The proportion of variance in the friendliness ratings accounted for by applicant attractiveness, as calculated by omega^2 was .46.

Table 5

Summary of Repeated Measures Analysis of Variance for Bipolar Adjectives

	Dependent Variable								
Source	1	2	3	4	5	6	7	8	9
Rater Sex (C)	6.2	<1	<1	<1	3.2	<1	1.8	<1	1.8
Stereotype (D)	2.7	<1	<1	1.0	1.6	<1	1.0	<1	<1
App.Sex (A)	2.8	25.8*	8.9	63.9*	63.0*	79.8*	3.3	48.1*	13.0
Attract. (B)	57.8*	46.1*	46.5*	32.7*	43.6*	26.9*	71.7*	1.3	49.4*
C x D	6.7	3.3	1.3	8.1	<1	12.3	2.9	1.2	<1
C x A	<1	1.1	<1	<1	<1	1.2	<1	<1	1.7
D x A	3.6	<1	4.2	2.6	2.4	<1	<1	<1	3.5
C x B	2.7	5.6	3.1	3.5	2.7	4.3	1.3	<1	1.5
D x B	2.7	4.3	4.6	3.9	7.6	3.1	8.6	5.0	10.1
A x B	<1	2.4	3.0	3.0	4.1	1.6	<1	7.3	1.3
CxDxA	<1	1.3	<1	6.1	1.9	4.6	<1	13.7*	1.0
CxDxB	3.0	1.1	1.0	<1	<1	<1	2.1	<1	<1
CxAxB	15.1*	2.8	6.4	<1	<1	1.6	11.2	1.1	<1
DxAxB	2.5	<1	3.0	<1	1.5	<1	<1	<1	<1
CxDxAxB	1.1	<1	1.7	<1	1.0	2.6	<1	4.3	<1

*p <.001

1. Unfriendly (1)-Friendly (7)
2. Decisive (1)-Indecisive (7)
3. Cold (1)-Warm (7)
4. Logical (1)-Illogical (7)
5. Emotional (1)-Unemotional (7)
6. Assertive (1)-Unassertive (7)
7. Unlikable (1)-Likable (7)
8. Competitive (1)-Noncompetitive
9. Motivated (1)-Unmotivated

The interaction between rater sex, applicant sex and applicant attractiveness was graphed and is presented in Figure 2. Omega^2 was computed to determine the proportion of variance in the friendliness ratings explained by the interaction between rater sex/applicant sex/applicant attractiveness, omega^2=.18. A Newman-Keuls multiple means comparison was computed to determine where the significance in the interaction was located. The results are presented in Table 6.

The interaction showed the following significant differences. Attractive applicants, both male and female, were rated as friendlier than their unattractive counterparts by male and female raters. But when the applicant was unattractive, female raters attributed a higher level of friendliness to female applicants (M=5.26) than to male applicants (M=4.33). Whereas, male raters attributed a higher level of friendliness to unattractive male applicants (M=4.33) than they did to unattractive female applicants (M=3.90). When the rater was female, attractive females (M=6.00), attractive males (M=5.73), and unattractive females (M=5.26) were rated as significantly more friendly than unattractive males (M=4.33). In fact, female raters rated unattractive females (M=5.26) higher on the friendly scale than male raters rated unattractive applicants of either sex (M=4.33, M=3.90). There was no difference in the ratings of attractive females, attractive males or unattractive males as a function of rater sex.

Decisive/Indecisive. The main effects for applicant sex and applicant attractiveness were found to be significant. The main effect for applicant sex was due to the fact that female applicants (M=3.61) were rated higher on indecisiveness than male applicants (M=2.84),

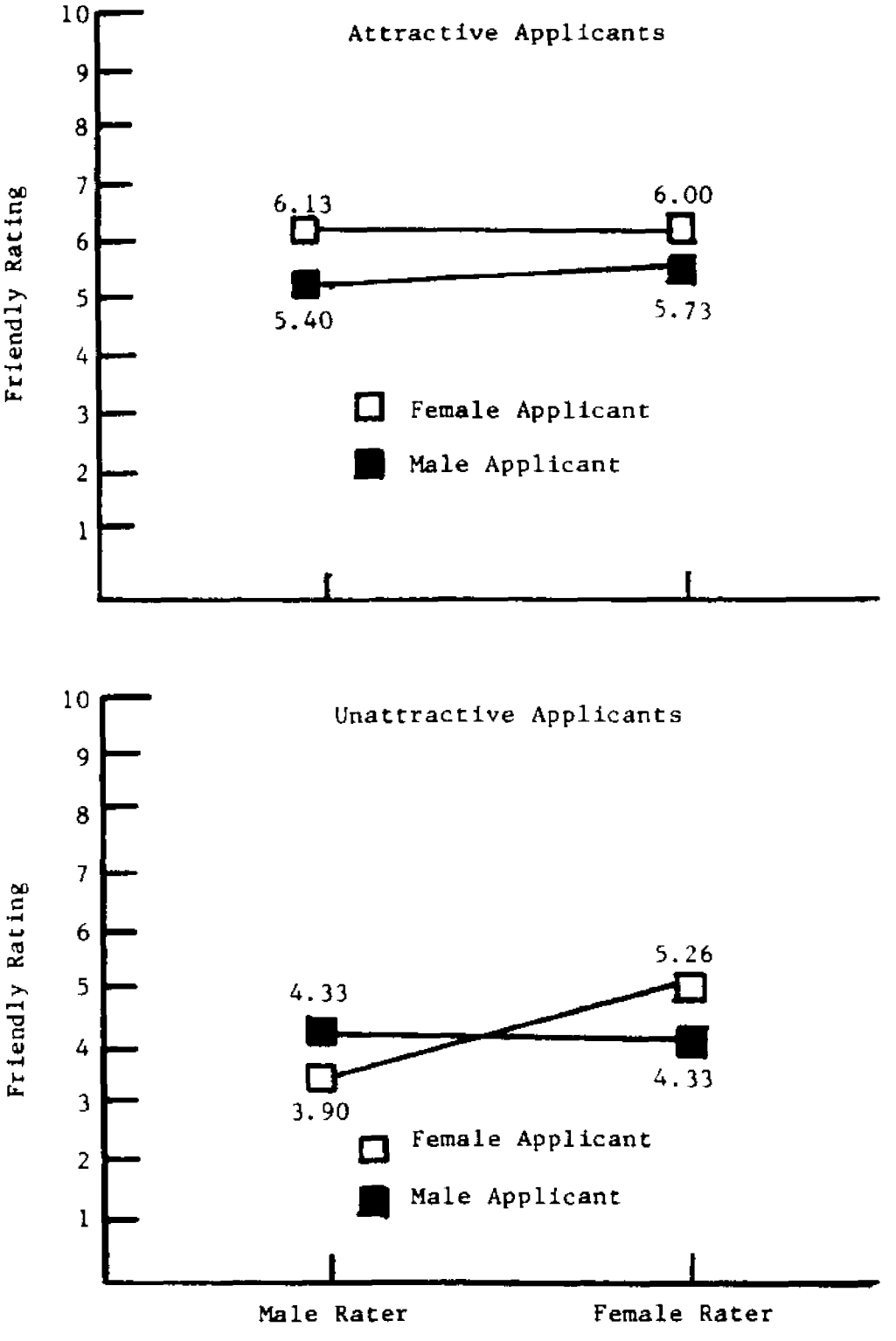

FIGURE 2. Mean friendly ratings as a function of rater sex, applicant sex and applicant attractiveness. Scale = unfriendly (1) - Friendly (7).

Table 6

Results of Newman-Keuls Procedure: Applicant Sex, Applicant Attractiveness and Rater Sex Interaction on Friendly Rating

Group	3	5	7	1	8	6	2	4
	AF MR	AF FR	AM FR	AM MR	UF FR	UM FR	UM MR	UF MR
Mean	6.13	6.00	5.73	5.40	5.26	4.33	4.33	3.90

$p < .05$

AF=Attractive female applicant
AM=Attractive male applicant
UF=Unattractive female applicant
UM=Unattractive male applicant

MR=Male rater
FR=Female rater

omega^2=.29. The main effect for applicant attractiveness showed that unattractive applicants (M=3.83) were perceived to be more indecisive than attractive applicants (M=2.61), and for this effect, omega^2=.39.

Cold/Warm. The only significant effect on the cold-warm rating was for applicant attractiveness. The effect was due to the fact that attractive applicants (M=5.60) were rated as warmer than unattractive applicants (M=4.41). The proportion of variance in the cold/warm ratings accounted for by applicant attractiveness, as calculated by omega^2 was .41.

Logical/Illogical. The main effects for applicant sex and attractiveness were found to be significant. Female applicants (M=3.71) were perceived to be more illogical than male applicants (M=2.60), omega^2=.48. Unattractive applicants (M=3.65) were rated as more illogical than attractive applicants (M=2.66), and this effect explained .32 of the variance.

Emotional/Unemotional. There were significant main effects for applicant sex and attractiveness. The main effect for applicant sex indicated that male applicants (M=4.31) were rated as more unemotional than female applicants (M=2.69), omega^2=.50. The main effect for applicant attractiveness was due to unattractive applicants (M=3.90) being rated as more unemotional than attractive applicants (M=3.10), omega^2=.38.

Assertive/Unassertive. There were significant main effects found for applicant sex and applicant attractiveness. Female applicants (M=3.90) were perceived to be significantly less assertive than male applicants (M=2.39). It was determined by omega^2 that the variance in

the assertiveness ratings explained by applicant sex was .55. The main effect for applicant attractiveness was due to the fact that unattractive applicants (M=3.56) were rated as more unassertive than attractive applicants (M=2.73), omega^2=.28.

Unlikable/Likable. The only significant effect for likability was the applicant's level of attractiveness. This was due to the fact that attractive applicants (M=5.77) were rated as more likable than unattractive applicants (M=4.42). The proportion of variance in the likability ratings accounted for by applicant attractiveness, as calculated by omega^2, was .50.

Competitive/Noncompetitive. There was a significant main effect for applicant sex and a significant interaction between applicant sex, rater sex and rater sex-role stereotype. The main effect for applicant sex was due to the fact that female applicants (M=3.70) were rated as less competitive than male applicants (M=2.60), omega^2=.39.

The significant interaction was graphed and is presented in Figure 3. The significant interaction between applicant sex/rater sex/rater sex-role stereotype accounted for .11 of the variance in the competitiveness ratings, as determined by omega^2. A Newman-Keuls test was then done to determine where the differences among the means were located. The results are presented in Table 7. This three way interaction revealed the following significant differences: male raters with non-traditional sex-role stereotypes attributed similar levels of competitiveness to male (M=2.63) and female (M=3.30) applicants, while female raters with traditional sex-role stereotypes attributed similar levels of competitiveness to male (M=2.90) and female (M=3.26) applicants.

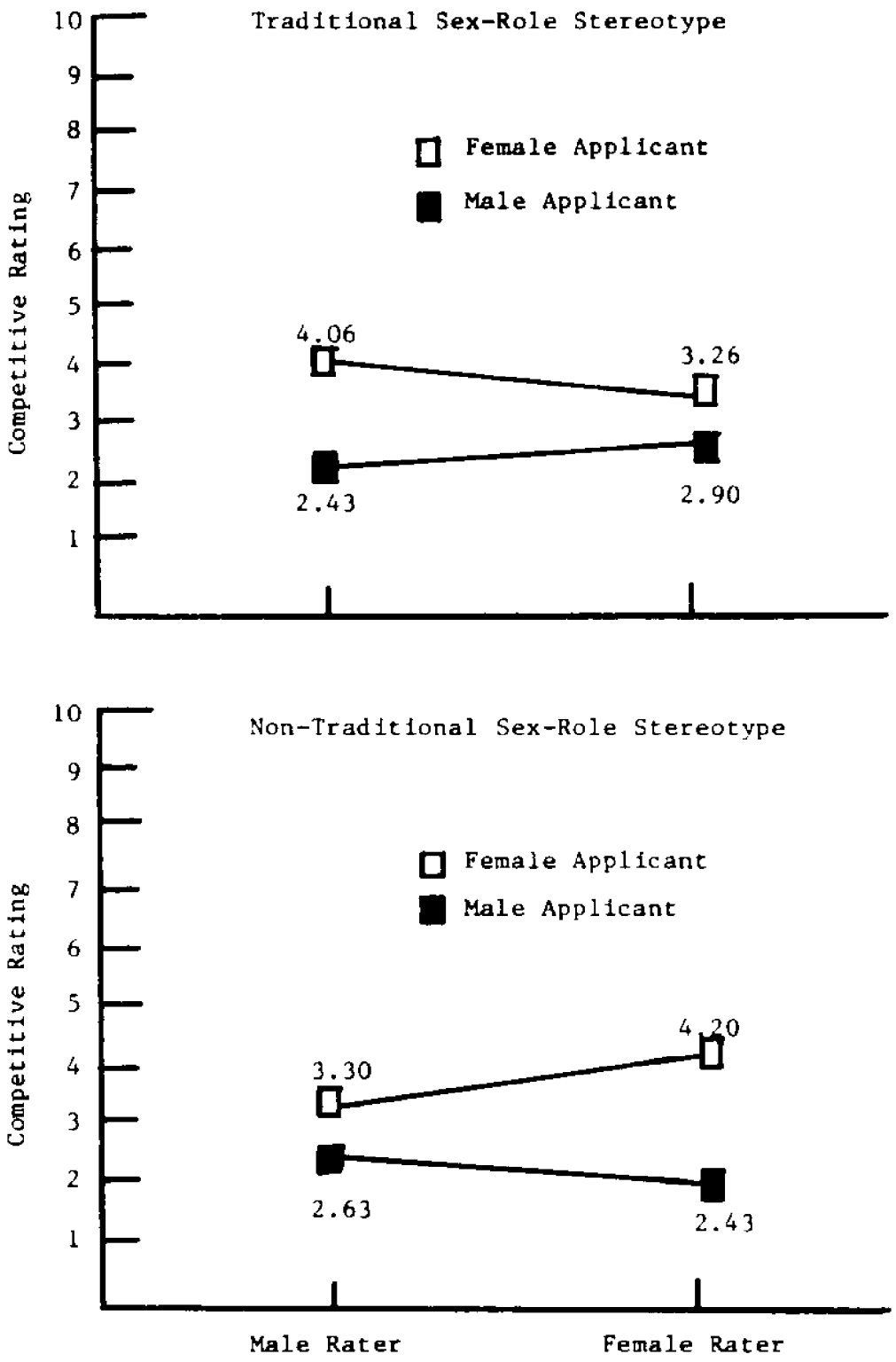

FIGURE 3. Mean competitive ratings as a function of rater sex, rater sex-role stereotype and applicant sex. Scale = competitive (1) - non-competitive (7).

Table 7

Results of Newman-Keuls Procedure: Applicant Sex, Rater Sex and Rater Stereotype Interaction on Competitive Rating

Group	8	3	4	7	5	2	6	1
	FA F/NS	FA M/TS	FA M/NS	FA F/TS	MA F/TS	MA M/NS	MA F/NS	MA M/TS
Mean	4.20	4.06	3.30	3.26	2.90	2.63	2.43	2.43

$p < .05$

FA=Female Applicant
MA=Male Applicant

F/NS= Female Rater, Non-traditional sex-role stereotype
M/TS=Male Rater, Traditional sex-role stereotype
M/NS=Male Rater, Non-traditional sex-role stereotype
F/TS=Female Rater, Traditional sex-role stereotype

Male raters with a traditional sex-role stereotype rated male (M=2.43) and female (M=4.06) applicants significantly different on competitiveness, and female raters with non-traditional sex-role stereotypes rated male (M=2.43) and female (M=4.20) applicants significantly different on competitiveness. Although there was no significant difference in the ratings of female applicants as a function of rater sex or rater sex-role stereotype, female applicants were rated as least competitive of all applicants by male raters with traditional sex-role stereotypes (M=2.43) and by female raters with non-traditional sex-role stereotypes (M=2.43).

Motivated/Unmotivated. The main effect for applicant attractiveness was significant. This was due to the fact that unattractive applicants (M=2.83) were rated as significantly more unmotivated than attractive applicants (M=1.98), omega^2=.41.

The mean ratings on the bipolar adjectives as function of rater sex, rater sex-role stereotype, applicant sex and applicant attractiveness are presented in Table 8.

Analysis of Causal Attributions

Table 9 presents the mean attributional ratings for the different causes of past performance at all levels of the independent variables. The higher the mean ratings, the more the attribution was seen as an important cause of past performance.

A 2 x 2 x 2 x 2 repeated measures analysis of variance was computed on the ratings of the causal attributions. Table 10 presents a summary of the results. Significant interactions were examined with the Newman-Keuls multiple comparison procedure. All significant main effects

Table 8

Means of Ratings on Bipolar Adjectives

Bipolar Adjectives	Traditional Sex-Role Stereotype Male Rater			
	Attractive		Unattractive	
	Male	Female	Male	Female
Unfriendly (1) Friendly (7)	5.40	6.00	4.40	3.66
Decisive (1) Indecisive (7)	2.26	3.06	3.80	4.46
Cold (1) Warm (7)	5.13	6.00	4.53	4.00
Logical (1) Illogical (7)	2.13	3.26	3.26	4.33
Emotional (1) Unemotional (7)	3.66	2.00	4.13	3.00
Assertive (1) Unassertive (7)	1.93	4.33	3.13	4.80
Unlikable (1) Likable (7)	5.33	5.86	4.40	4.20
Competitive (1) Noncompetitive (7)	2.00	4.86	2.86	3.26
Motivated (1) Unmotivated (7)	1.66	2.40	2.33	2.80

Bipolar Adjectives	Traditional Sex-Role Stereotype Female Rater			
	Attractive		Unattractive	
	Male	Female	Male	Female
Unfriendly (1) Friendly (7)	6.00	5.80	5.33	5.53
Decisive (1) Undecisive (7)	2.33	3.60	3.13	3.26
Cold (1) Warm (7)	5.20	5.66	5.20	5.00
Logical (1) Illogical (7)	2.26	3.33	2.86	3.13
Emotional (1) Unemotional (7)	4.06	2.86	4.26	3.06
Assertive (1) Unassertive (7)	2.20	3.40	2.73	3.40
Unlikable (1) Likable (7)	5.66	5.60	4.93	5.40
Competitive (1) Noncompetitive (7)	2.86	3.33	2.93	3.20
Motivated (1) Unmotivated (7)	1.86	2.60	2.33	2.93

Table 8--Continued

Means of Ratings on Bipolar Adjectives

Bipolar Adjective	Non-Traditional Sex-Role Stereotype Male Rater			
	Attractive		Unattractive	
	Male	Female	Male	Female
Unfriendly (1) Friendly (7)	5.40	6.26	4.26	4.13
Decisive (1) Indecisive (7)	1.93	2.33	3.66	4.26
Cold (1) Warm (7)	5.20	6.40	4.06	4.13
Logical (1) Illogical (7)	1.60	2.73	3.40	4.00
Emotional (1) Unemotional (7)	3.73	1.93	4.66	3.53
Assertive (1) Unassertive (7)	1.40	2.40	2.53	4.26
Unlikable (1) Likable (7)	5.60	6.26	4.26	4.06
Competitive (1) Noncompetitive (7)	2.33	3.13	2.93	3.46

Bipolar Adjective	Non-Traditional Sex-Role Stereotype Female Rater			
	Attractive		Unattractive	
	Male	Female	Male	Female
Unfriendly (1) Friendly (7)	6.00	5.66	3.33	5.00
Decisive (1) Indecisive (7)	1.93	3.46	3.66	4.46
Cold (1) Warm (7)	5.40	5.80	3.40	4.93
Logical (1) Illogical (7)	2.00	4.00	3.33	4.93
Emotional (1) Unemotional (7)	4.86	1.73	5.13	3.46
Assertive (1) Unassertive (7)	2.00	4.20	3.20	4.46
Unlikable (1) Likable (7)	6.00	5.86	3.46	4.66
Competitive (1) Noncompetitive (7)	1.80	4.06	3.06	4.33
Motivated (1) Unmotivated (7)	1.80	2.26	2.80	3.26

Table 9

Means of Ratings on Causal Attributions

Causal Attributions	Applicant	Traditional Stereotype		Non-Traditional Stereotype	
		Male Rater	Female Rater	Male Rater	Female Rater
Ability (or lack of ability)	A/Male	5.26	5.80	6.00	6.06
	U/Male	4.66	5.20	4.33	4.93
	A/Female	5.40	5.73	6.00	5.46
	U/Female	4.33	5.06	4.53	4.66
Effort (or lack of effort)	A/Male	6.13	5.73	6.33	6.00
	U/Male	5.26	5.40	4.73	5.13
	A/Female	6.06	5.53	6.26	5.66
	U/Female	4.80	5.26	4.73	5.40
Luck (or lack of luck)	A/Male	3.93	3.73	4.33	3.86
	U/Male	4.60	3.93	5.13	5.73
	A/Female	3.33	3.46	2.93	4.66
	U/Female	4.60	3.73	5.46	5.06
Task Easiness (or difficulty)	A/Male	3.26	4.33	3.60	3.00
	U/Male	4.80	4.80	4.26	4.60
	A/Female	3.00	4.13	3.26	3.73
	U/Female	3.93	3.86	4.66	3.66

Note: The higher the mean rating, the more the attribution was seen as an important cause of past performance.

A/Male=Attractive male
U/Male=Unattractive male
A/Female=Attractive female
U/Female=Unattractive female

Table 10

Summary of Repeated Measures Analysis of Variance on Causal Attributions

	Dependent Variable			
Source	Ability	Effort	Luck	Task
Rater Sex (C)	5.73	<1	<1	<1
Rater Stereotype (D)	<1	<1	7.65	<1
Applicant Sex (A)	1.72	1.23	2.26	2.50
Applicant Attractiveness (B)	75.11*	54.50*	26.94*	11.07
C x D	3.46	<1	2.09	2.00
C x A	1.72	<1	1.00	<1
D x A	<1	<1	<1	1.97
C x B	3.00	13.89*	2.70	2.21
D x B	5.34	2.62	4.31	<1
A x B	<1	<1	<1	2.47
C x D x A	1.72	<1	<1	<1
C x D x B	<1	<1	<1	<1
C x A x B	<1	1.79	7.12	3.09
D x A x B	2.02	1.79	<1	<1
C x D x A x B	<1	<1	3.63	2.47

*p <.001

or interactions ($p < .001$) were examined by omega^2 to determine the amount of variance explained.

Ability Rating. As shown in Table 10, there was a significant main effect for applicant attractiveness. This effect showed that past performance was attributed to much higher ability when the applicant was attractive (M=5.71) rather than unattractive (M=4.71), omega^2=.52.

Effort Rating. There was a significant main effect for applicant attractiveness and a significant interaction between rater sex and applicant attractiveness. The main effect was due to the fact that the past performance of attractive applicants (M=5.96) was more likely to be attributed to high effort than the past performance of unattractive applicants (M=5.08), omega^2=.42.

The interaction between rater sex and applicant attractiveness was graphed and is presented in Figure 4. The amount of variance in the effort ratings explained by the rater sex/applicant attractiveness interaction was .10 as determined by omega^2. To determine where the differences among means were, a Newman-Keuls multiple range test was computed. These results are displayed in Table 11. As shown in Figure 4, both male and female raters differentiated significantly between attractive and unattractive applicants. The past performance of attractive applicants (M=6.19) was more likely to be attributed to high effort than the past performance of unattractive applicants (M=4.88) when the rater was male. The past performance of attractive (M=5.73) and unattractive (M=5.29) applicants was more likely to be attributed to high effort by female raters than the past performance of unattractive applicants (M=4.88) by male raters.

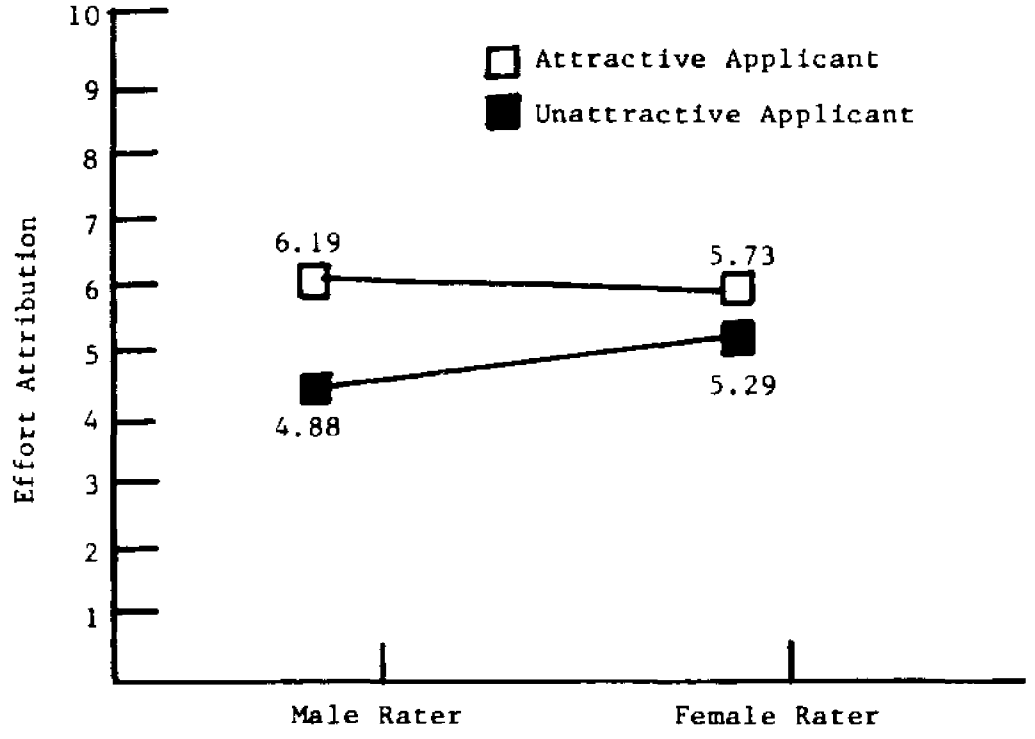

FIGURE 4. Mean effort attribution ratings as a function of rater sex and applicant attractiveness.

Table 11

Results of Newman-Keuls Procedure: Applicant Attractiveness and Rater Sex Interaction on Effort Ratings

Group	1 (MR/A)	2 (FR/A)	4 (FR/U)	3 (MR/U)
Mean	6.19	5.73	5.29	4.88

$p < .05$

MR/A=Male rater, attractive applicant
FR/A=Female rater, attractive applicant
FR/U=Female rater, unattractive applicant
MR/U=Male rater, unattractive applicant

Luck Rating. A significant main effect for applicant attractiveness was found. This effect was due to the fact that luck was rated as a more important cause of past performance for unattractive applicants (M=4.78) than for attractive applicants (M=3.78), omega^2=.28.

Task Difficulty Rating. There was no significant main effects or interaction effects found when task difficulty was used as the dependent variable.

Descriptive Statistics of Study Participants

Participants in the study were asked to complete a questionnaire which supplied demographic data on the sample of subjects. Responses to the questionnaire provided the following profile of study participants.

Of the 60 students participating in the study, 67% were majoring in radiologic technology. The complete data on the current major of all study participants are reported in Table 12.

The study participants were also asked to indicate their classification in the academic institution. The results revealed that 37% of the respondents were juniors and 33% were seniors. The complete data on the classification of all study participants are reported in Table 13. Table 14 reveals the mean age and sex of the study participants.

Table 12

Current Major of Study Participants

Major	Frequency	Percentage
Dental Hygiene	6	10
Medical Technology	12	20
Radiologic Technology	40	67
Other	2	3
TOTAL	60	100

Table 13

Classification of Study Participants

Classification	Frequency	Frequency
Freshman	11	18
Sophomore	7	12
Junior	22	37
Senior	20	33
TOTAL	60	100

Table 14

Study Participants Age and Gender

Age	Gender	Frequency	Percentage
X = 21	Male	30	50
s.d. = 2.86	Female	30	50
Range = 18-35			
	TOTAL	60	100

CHAPTER V

SUMMARY AND CONCLUSIONS

Introduction

This chapter begins with a brief summary of the problem and methodology. The next section summarizes and discusses the study's results. The final section discusses the methodological considerations relevant to the study and the conclusions.

Review

This study examined the effects of rater sex, rater sex-role stereotypes, applicant sex and applicant attractiveness on the evaluation of candidates in the screening phase of undergraduate student admission procedures. These variables are believed to influence the evaluation of candidates, and understanding the extent to which this occurs in the screening phase of selection procedures was a major purpose of the study.

The rater's sex-role stereotype was assessed by the Bem Sex-Role Inventory (BSRI). Subjects who scored above the median on the sex-congruent scale and below the median on the sex-incongruent scale were labeled as raters with traditional sex-role stereotypes. Subjects who scored above the median on both scales were labeled as raters with non-traditional sex-role stereotypes. Fifteen subjects in each category were randomly selected from a total pool of 240 subjects. Only the research data from these 60 participants were used in the study. Subjects were undergraduate students in health science programs at a

regional university in the southeast.

The experimental task consisted of rating hypothetical applicants on overall suitability, discriminating among a series of adjectives which reflect personality characteristics of the applicant, and assigning causal attributions for the past performance of the candidate. Each subject evaluated four hypothetical applicants: attractive male, unattractive male, attractive female and unattractive female. The four independent variables yielded a 2 x 2 x 2 x 2 factorial design. Rater sex and sex-role stereotype were between-groups factors and applicant sex and applicant attractiveness were repeated measures. The materials used to simulate candidates with equivalent qualifications and different levels of physical attractiveness were developed and tested on another sample of subjects prior to the main study.

Discussion of Results

Applicant Attractiveness

Results of the repeated measures analysis of variance revealed a significant main effect for applicant attractiveness. This finding led to the rejection of the first primary hypothesis that there would be no difference in the ratings of the candidate's overall suitability due to the applicant's level of attractiveness. The data revealed that attractive applicants were rated higher than unattractive applicants and that this effect explained a rather large amount of the variance (Omega =.52) in the suitability ratings of applicants. Previous studies have documented the significant effect of physical attractiveness on candidate evaluation and are generally supportive of this finding (Dipboye, Arvey & Terpstra, 1977; Dipboye, Fromkin & Wiback, 1975;

Heilman & Saruwatari, 1979; Cash, Begley, McCown & Weisse, 1975; and Cash, Gillen & Burns, 1977).

In a study similar to the present one, Cash et al (1977) found that physically attractive applicants were preferred to unattractive applicants, regardless of sex, when being considered for a position designated as neuter. Resume studies by Dipboye, Fromkin and Wiback (1975) and Dipboye, Arvey, and Terpstra (1977) found a similar main effect for the applicant's level of attractiveness. Results from the present study imply the presence of a physical attractiveness stereotype and indicate that attractiveness is an important stimulus cue, particularly in first impression situations.

The analyses of the bipolar adjectives revealed that attractive applicants relative to unattractive applicants, were rated as more friendly, decisive, warm, logical, emotional, assertive, likable and motivated. Earlier research by Miller (1970) and Berscheid and Walster (1974) found similar results which demonstrated that high levels of attractiveness tend to be associated with positive traits and low levels of attractiveness tend to be associated with negative traits. Even more relevant to the present investigation, Dion et al (1972) found that attractive people of both sexes were expected to be more likely to possess desirable personality traits and that these expectations did not differ as a function of the observer's sex.

The analyses of the causal attributions for the candidate's past performance revealed a significant main effect for applicant attractiveness on the ratings for ability, effort, and luck. When the applicant was attractive rather than unattractive, their past

performance was attributed to a higher level of ability and effort; the past performance of unattractive applicants was attributed more to luck. While no previous investigation has examined the effect of physical attractiveness on the causal attributions for past performance in the manner of the present study, previous studies have attested to the importance of stereotypes on the ratings of causal attributions. Deaux and Enswiller (1974) and Feather and Simon (1975) demonstrated that people tend to assign different causes to the explanation of performance based on the stereotypic expectations of the observer.

The strong findings for physical attractiveness observed here have implications for future research on selection procedures in general and the screening phase of selection procedures in particular. First, the effect of physical attractiveness on candidate evaluation needs further study. The large amount of variance explained by the physical attractiveness variable in this study suggests that physical attractiveness may be more influential in the screening phase of selection procedures, when only limited information is available, than was previously thought, especially when candidates with equivalent qualifications are evaluated. Future investigations might examine whether the physical attractivness stereotype is applicable to observers in other age groups. For example, Del Boca and Ashmore (1980) proposed that stereotypes change through the life cycle. Since the participants in the current study represent a narrow age range group, it is possible that when equally qualified applicants are evaluated by older individuals the effect of the applicant's level of attractiveness may vary as a function of the evaluator's age group.

Second, future investigations might examine the effects of the attractiveness variable at more discreet levels than those available in the present study. It may be that more extreme levels of attractiveness, such as those used in the present study, increase the salience of the stimulus cue and result in higher levels of bias on the part of the evaluator.

Further, it is recommended that additional variables which might interact with that of physical attractiveness need to be examined. Attractiveness may interact with other stimulus cues not included in the present study, such as the race of the applicant or the applicant's overall appearance and actual demeanor in an interview situation.

Applicant Sex

The second primary hypothesis stated that the sex of the applicant would have no effect on the overall suitability ratings of candidates. Results of the statistical analyses led to the rejection of this hypothesis. The significant main effect for applicant sex explained only a small amount of the variance (Omega^2=.04) in the suitability ratings of applicants. Specifically, the effect revealed that male applicants were rated significantly higher than female applicants. This finding of a pro-male bias supports a number of studies in which male applicants with equivalent qualifications were consistently rated higher than female applicants (Nieva & Gutek, 1980).

The ratings of male and female applicants on the bipolar adjectives revealed that raters rated the applicants in a manner consistent with widespread and pervasive sex stereotypes. Male applicants were rated as more decisive, logical, assertive and competitive than equally

qualified female applicants; female applicants were rated as more emotional than equally qualified male applicants. These findings are supported by the Broverman et al (1972) study which revealed that there is wide-spread agreement about the differing characteristics of males and females, and that those characteristics which are stereotypically attributed to males are more positively valued than those stereotypically attributed to females.

When the analysis of variance was computed on the causal attributions for past performance of the candidate, the results did not reveal any significant effects for applicant sex. The lack of any significant main effects for applicant sex on the ratings of causal attributions in the present study are inconsistent with those found by Deaux and Enswiller (1974) and Feather and Simon (1975). However, the results found in this investigation are in line with more recent research by Kinicki and Lockwood (1985) and Kinicki and Griffeth (1985) which found a lack of sex-related bias on causal attributions for past performance.

With regard to the above inconsistencies, Miller's (1970) work on the role of physical attractiveness in impression formation may suggest a plausible explanation. Miller found that physical attractiveness was a potentially strong determinant of first impressions. Further, Miller's findings revealed that while the person's sex may act as a stimulus cue in some situations, as the level of attractiveness increases, the sex of the person becomes a less influential impression determinant. Since the previously mentioned studies (Deaux & Enswiller, 1974; and Feather and Simon, 1975) did not include the attractiveness variable, this may

explain the difference in findings in the present study (which manipulated both applicant sex and applicant attractiveness).

It is suggested that future studies involving sex-related biases be designed to include other variables such as the candidate's level of attractiveness, which may supersede the effect of candidate sex on the evaluation of candidates in the screening phase of selection procedures.

Rater Sex

In terms of overall suitability ratings, the analysis of variance revealed a significant effect for the sex of the rater. As a result of this finding, the hypothesis that there would be no difference in the overall suitability ratings of candidates due to the sex of the rater was rejected. The significant main effect for rater sex revealed that applicant suitability ratings from female raters were significantly higher than applicant suitability ratings from male raters. This effect for rater sex accounted for a moderate amount of the variance ($Omega^2 = .12$) in the suitability ratings of applicants. The finding that female raters are more lenient than male raters conforms to previously reported findings by Rose and Andiappan (1978) and Muchinsky and Harris (1977).

The results of the analyses on the bipolar adjectives did not reveal a statistically significant difference due to the sex of the rater. Likewise, there was no effect on the ratings of causal attributions for past performance of the applicant due to the sex of the rater.

The positive finding for rater sex which was observed in the present investigation accounted for a significant amount of the explained variance. However, past research on this variable has been inconclusive (Deaux & Enswiller, 1974; Elmore & La Pointe, 1974; Del Boca & Ashmore,

1980; Muchinsky & Harris, 1977; and Rose & Andiappan, 1978). One explanation for these inconsistencies may be that there are other characteristics associated with the rater which might be responsible for the effect. For example, in the present study it was predicted that the rater's sex-role stereotype would have an effect on the suitability ratings of applicants. This prediction was not confirmed by the results. However, there was a significant interaction between applicant sex and rater sex-role stereotype which would suggest that there is some relationship between applicant characteristics and rater characteristics which may have an impact on the suitability ratings of candidates.

It is suggested that subsequent studies be designed to separate the effect of rater sex from other rater characteristics which may have an effect on the evaluation of candidates. A study designed to identify the personality characteristics of the rater which may interact with applicant sex to influence candidate evaluation is recommended.

Rater Sex-Role Stereotype

The fourth primary hypothesis concerned the effect of the rater's sex-role stereotype on candidates' suitability ratings. When the analysis of variance was computed the results did not provide evidence to warrant the rejection of this hypothesis. There was no main effect for the rater's sex-role stereotype on the ratings of the bipolar adjectives or the ratings of causal attributions for the candidates' past performance.

The lack of a significant main effect for rater sex-role stereotype in the present study may be due to a weakness in the particular

instrument used in this study to determine the rater's sex-role stereotype, or to some unique characteristics of the sample used in the current investigation. Traditionally, individuals attracted to health science areas or careers which involve service to others must have certain personality characteristics which transcend stereotypic expectations for males and females. For example, in the general population, warmth and friendliness are characteristics stereotypically associated with females rather than males. But warmth and friendliness are characteristics expected of all health science personnel regardless of sex. Therefore, it seems reasonable to conclude that the sample of subjects used in this study, undergraduate students enrolled in health science programs, may not be representative of the population as a whole with respect to traditional sex-role stereotypes.

More studies are needed to fully assess the role that the rater's sex-role stereotype has on the evaluation of candidates. It is recommended that a replication of the present study be conducted with a more heterogeneous sample of adults to determine if the results found in this investigation are an artifact of the sample employed.

Interaction Effects

The final hypothesis concerned the overall effects that interactions among the independent variables had on the suitability ratings of candidates. When the repeated measures analysis of variance was computed to test these hypotheses, the results indicated that there was a significant effect for the rater sex/applicant attractiveness interaction and the applicant sex/rater sex-role stereotype interaction. All remaining hypotheses could not be rejected.

The post hoc analysis of the results of the rater sex/applicant attractiveness interaction revealed that male and female raters did not differ significantly in their evaluation of attractive applicants. However, when the applicant was unattractive, female raters awarded significantly higher ratings to the unattractive applicants than did male raters. This finding suggests that even though females hold physical attractiveness stereotypes, these may not be as strong as those held by males.

The significant finding produced by the applicant sex/rater sex-role stereotype interaction accounted for only a small amount of the variance ($Omega^2 = .07$) in the suitability ratings. However, the post hoc procedures did not detect any significant difference between the means. While this finding is somewhat surprising it is not unfounded. Taylor (1981) suggests that highly sex-typed individuals (traditional sex-role stereotypes) use sex as a categorical system for organizing information, whereas non-sex-typed individuals (non-traditional sex-role stereotypes) are far less likely to do so. This may have been true of the subjects participating in this study and may account for the fact that there was a statistically significant interaction between applicant sex and rater sex-role stereotype sufficient to produce the effect. However, when individual means were compared, differences were not statistically significant.

The interaction between applicant sex and rater's sex-role stereotype found in the present study offers some support to previous findings on the effect of rater characteristics on the evaluation of candidates. Results from Simas and McCarrey (1979) suggest a similar

interaction between applicant sex and a measure of the rater's authoritarianism.

Analyses of the adjective ratings revealed two significant three way interactions. On the rating of friendliness, there was a significant interaction between rater sex, applicant sex and applicant attractiveness. The interaction showed that attractive applicants were rated as friendlier than unattractive applicants by both male and female raters. However, when the applicant was unattractive, male raters attributed higher levels of friendliness to male applicants and female raters attributed higher levels of friendliness to female applicants. Additionally, female raters tended to be more lenient than male raters in their ratings of applicants, regardless of the applicant's level of attractiveness.

On the rating of competitiveness there was a significant interaction between applicant sex, rater sex and rater sex-role stereotype. While this interaction is somewhat complex and difficult to interpret it is suggested that female raters with non-traditional sex-role stereotypes differentiate between male and female applicants on the rating of competitiveness to a greater degree than male raters with non-traditional sex-role stereotypes. However, when the rater's stereotype was traditional, the reverse holds true. Male raters with traditional sex-role stereotypes differentiated between male and female applicants to a greater degree than female raters with traditional sex-role stereotypes.

Analysis of variance on the causal attributions for past performance of the applicants revealed that there was a significant

interaction between rater sex and applicant attractiveness on the rating of the effort attribution. This interaction revealed a pro-attractiveness bias from both male and female raters. At the same time, male raters tended to differentiate between attractive and unattractive applicants to a greater degree than female raters.

The significant findings on the interaction effects in the current study suggest the need for a study which examines the effects of similar independent variables using a more complex research design. A study designed to test the effects of rater characteristics and candidate characteristics which utilizes a multivariate research design is recommended.

Methodological Considerations

Since criticism could be directed toward certain methodological procedures employed in this study, a discussion of the criticisms is warranted. One limitation concerns the sample. The study participants were undergraduate students and represented a restricted age range (18-35). The hypothetical applicants that the subjects were asked to evaluate were from a similar age group. This may have produced a response bias that would not be evident across raters of different age groups. More specifically, the lack of a significant effect for the rater's sex-role stereotype, as predicted, may have resulted because of the age group of the raters involved in the study.

Another limitation concerns the time required to recruit the pool of 240 subjects needed for the experiment. The experimental task was administered to a number of different classes during a two week period of time. While this does not represent an unduly long period of time to

secure participants, the possibility of contamination still exists. Students participating in the experimental task during one class period may have discussed the experience with others who may have been participating at a later period of time. While there is little that the researcher could do to prevent this occurring, precautions were taken by the researcher not to reveal the purposes of the research until after all the data had been collected.

Criticism could also be directed to the fact that black and white photographs, not color, were used to depict the hypothetical applicants. Some might argue that color photographs would have made the experimental task more realistic and provided a better view of the applicant's level of physical attractiveness. The decision to use black and white photographs was based on the prohibitive cost of color photographs. While the use of color photographs may have added realism to the experimental task, results show that the use of black and white photographs did not prevent participants from distinguishing between physically attractive and physically unattractive applicants.

Another limitation concerns the restricted range of applicant characteristics used in the study. Since there were no other differences between the applicants, one might expect that the rater's decision would be based on applicant sex or level of attractiveness. A more powerful test of the hypotheses proposed in this study might be to so design the study that there were in fact other bases upon which to categorize and select the applicants.

Theoretical Considerations

The strong findings for physical attractiveness observed here

emphasize the importance of cognitive biases on the evaluation of candidates in the screening phase of selection procedures. It seems reasonable to conclude, on the basis of these findings, that a person's level of physical attractiveness is accurately perceived by others and is an important stimulus cue in first impression situations.

These results imply that a physical attractiveness stereotype biased the way raters processed information about equally qualified applicants and influenced the causal attributions for the past performance of the applicant. Because high levels of attractiveness tend to be associated with positive traits, attractive applicants were rated higher than equally qualified unattractive applicants both on the overall suitability ratings and the adjectives which reflect positive and desirable personality characteristics. Since the successful performance of attractive applicants was consistent with stereotypic expectations, the past performance of attractive applicants was attributed more to internal factors (ability and effort) than to external factors. The past performance of equally qualified unattractive applicants was attributed more to the external factor of luck than to internal factors.

The results of the study are consistent with the cognitive-attributional analysis of stereotyping developed by Hamilton (1979). Hamilton explained that stereotyping may be regarded as a useful and necessary function of person perception which facilitates the way we process information about others. According to Hamilton, the perceiver selects and organizes his perceptions in terms of categories. When there is only limited information available to the perceiver, the

process of categorization is likely to be based on physically prominent characteristics which are salient to the observer.

Previous studies which examined the effects of physical attractiveness on the evaluation of candidates manipulated either the qualifications of the candidate (Dipboye, Arvey, & Terpstra, 1977; and Dipboye, Fromkin, & Wiback, 1975) or the type of job (Heilman and Saruwatari, 1979). The findings for the effect of physical attractiveness in those studies were rather small when compared to the present findings. Hamilton's outline of the cognitive processes involved in perceiving and attributing behavior through stereotypic categories provides a plausible explanation for the differences in these results. When more information is available to evaluators it would be expected that the effect of physical attractiveness would be small. However, in situations where the information about candidates is ambiguous, incomplete, or equivalent, reliance on the salient characteristic of applicant attractiveness may become a necessary part of the categorization process. Thus, if the observer has stereotypic expectations with regard to that category, such as a physical attractiveness stereotype, it will bias the way in which the observer processes information about the individual and makes causal attributions for the performance of the individual.

While applicant sex had a significant effect on the suitability ratings, the practical significance of this effect was extremely small. One plausible explanation for this finding might be a decrease in the stereotyping process, at least on the basis of sex, among the younger generation. Recent studies by Kinicki and Lockwood (1985) and Kinicki

and Griffeth (1985) have found no effect for applicant sex and thus would seem to support this proposition. Another equally plausible explanation might be that sex is only one factor which contributes to the formation of a total impression and when more distinctive stimulus cues, such as various levels of attractiveness, are available to the perceiver, these more subtle cues may be used to categorize the target person and to make inferences about that person.

Conclusions and Implications

It is noteworthy, given this subject population, this combination of variables and the limits associated with the present experimental task, that the effects of rater sex, applicant sex and applicant attractiveness on the suitability ratings of candidates in the screening phase of undergraduate student admission procedures were of statistical and practical significance. The results have several implications for practice in the area of student selection procedures, particularly for allied health educators and admission committees faced with the problem of identifying adequate selection procedures.

First, the results of this study and previous resume studies suggest that evaluators must be especially sensitive to potential sex-related biases, especially in the screening phase of the selection process. Since most educational programs in the allied health sciences have a greater number of qualified applicants than can be accepted, the screening of applicants is a crucial step in the selection process. The training for evaluators should address the problem of sex-related biases in first impression situations. To avoid possible errors in the

evaluation of applicants, decision-makers should take all necessary precautions to eliminate inappropriate biasing factors from their screening procedures. Any reference to the applicant's sex should be removed from the application form prior to the screening phase. Photographs of applicants should be removed from the application form prior to the screening process. Second, where it is feasible, individuals who evaluate candidates in the screening phase of the selection process should be replaced by other individuals when candidates are to be interviewed.

From a theoretical perspective, the results have important implications in terms of advancing the development of attribution theory. When the information available to an observer is extremely limited, a salient cue such as the individual's level of physical attractiveness, may be a sufficient basis for the categorization of the target individual. Once that categorization has occurred, the observer may perceive similarities within the category and exaggerate the differences between that category and others. Thus, the differential evaluation of equally qualified candidates found in the present study resulted because of cognitive biases associated with the category used by the perceiver.

These results suggest that physical attractiveness operates much the same as other categorical systems do. It is used as a means of organizing and processing information about others and inferring the cause of individual behavior based on expectations associated with that category.

Causal attributions for past performance were consistent with the expectations the observer had with regard to an attractiveness stereotype. Since the information available to the observer in the

current situation offered no basis for discrimination between candidates, the causal inferences reached by the rater were consistent with the individual rater's expectations.

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Appendix A

Instructions for Rating Candidate Physical Attractiveness (Pilot Study)

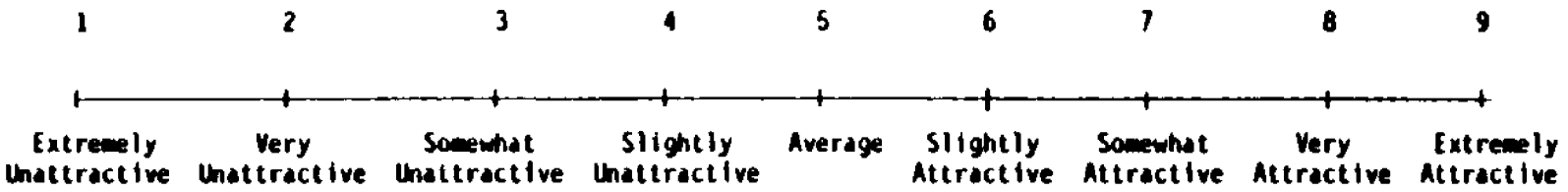
I am going to give you a number of photographs of males and females. The photographs are to be used in a larger study I am conducting to determine the effect of physical attractiveness on candidate evaluation.

I would like you to rate each photograph on physical attractiveness, with respect to the rating scale which is provided on a separate sheet. Notice that the scale ranges from extremely unattractive (1) to average (5) to extremely attractive (9). Consider each photograph, not merely with respect to one another, but compared with all of the males and females you have ever known.

Mark your rating by putting the number from the scale which best fits the photograph in the box under the photograph number. For example, if you think photograph number 1 is one of the most attractive individuals you have ever seen, you would write 9 in box 1. Be sure that you rate each photograph in the appropriate box.

Are there any questions before we start?

Rating Form for Pictures



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42

43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63

Appendix B

Respondents' Mean Rating of Candidates Physical Attractiveness (Pilot Study)

Candidate	Mean (X)	Standard Deviation
Male, Attractive	6.46	1.16
Male, Attractive	6.37	1.18
Male, Attractive	6.18	0.99
Male, Attractive	5.53	1.34
Male, Unattractive	3.81	1.35
Male, Unattractive	3.78	1.23
Male, Unattractive	2.59	1.01
Male, Unattractive	2.25	1.01
Female, Attractive	7.28	1.08
Female, Attractive	7.18	1.20
Female, Attractive	6.71	0.99
Female, Attractive	6.71	1.19
Female, Unattractive	4.03	1.03
Female, Unattractive	3.96	1.03
Female, Unattractive	3.71	1.02
Female, Unattractive	3.34	1.18

Note: Rating scale ranged from 1 for extremely unattractive to 9 for extremely attractive.

Appendix C

Demographic Data on Raters in Second Pilot Study

	Mean Years Experience	Mean Age
Males (n = 13)	7.13 (5.44)a	30.84 (5.30)
Females (n = 15)	9.46 (4.83)	34.93 (7.44)
Average	8.39 (4.36)	33.03 (6.75)

a Numbers in parentheses are standard deviations.

Appendix D

Instructions for Rating Application Form (Pilot Study)

This is an experiment on selective admission procedures. I am going to give you a packet of materials which contain the admission criteria, a completed application form, and an evaluation form. To preserve confidentiality, the name of the applicant has been omitted.

After carefully reviewing all the materials, please complete the evaluation form. Notice that the rating scale ranges from 1 to 7. Mark your rating by circling the number from the scale which best fits your rating of the applicant. When you are marking your rating, try to compare this applicant with all other applicants you have ever known and rate the applicant as if you were screening applicants for selective admission to the professional phase of the radiologic technology program. For the purposes of this experiment, please assume that this candidate meets the minimum requirements for admission.

Are there any questions before we start?

Appendix D - Continued

SCHOOL OF ALLIED HEALTH SCIENCES

CURRICULUM OF RADIOLOGIC TECHNOLOGY

Application for Admission

Admission Requirements to the Professional Program in Radiologic Technology

1. Completion of two years of pre-radiologic technology curriculum to include

   a. A minimum of 24 semester hours of natural science, including chemistry, zoology, and physics.

   b. A minimum of 6 semester hours of college level mathematics, including algebra and trigonometry.

   c. A minimum of 6 hours of health science, including medical technology and radiologic technology.

2. Minimum overall GPA of 2.0 on a 4.0 scale.

3. Minimum science GPA of 2.0 on a 4.0 scale.

4. Submission of a completed application form.

PERSONAL QUALIFICATIONS: The prospective student should be interested in and willing to care and work with sick and injured patients. An ability to be versatile, sympathetic, congenial, and understanding are desirable traits. Must be capable of exercising independent judgment, have an ability to cope with stressful situations, and have an aptitude for mechanical pursuits and scientific subjects.

Appendix D - Continued

CANDIDATE EVALUATION I

After reviewing the candidate's application form and admission criteria, please rate this candidate as if you were screening applications for selective admission to the professional phase of the radiologic technology program. (Please circle).

1. Candidate's suitability for the interview stage of the admission process

1	2	3	4	5	6	7
Not suitable at all			Average			Very suitable

2. Candidate's potential for academic success in the educational program

1	2	3	4	5	6	7
No potential at all			Average			High potential

3. Candidate's suitability for the educational program

1	2	3	4	5	6	7
Not suitable at all			Average			Very suitable

4. Candidate's potential for success in the profession

1	2	3	4	5	6	7
No potential at all			Average			High potential

5. Overall evaluation

1	2	3	4	5	6	7
Poor candidate			Average candidate			Excellent candidate

6. Based on the information you have received, would you recommend this candidate for admission into the professional phase of the radiologic technology program?

1	2	3	4	5	6	7
Definitely would not recommend			Neutral			Definitely would recommend

Appendix E

DATE OF APPLICATION 4-19-86

EXPECTED STARTING DATE 8-25-86

A. PERSONAL DATA

NAME IN FULL _____

TELEPHONE NUMBER 456-1168 SOCIAL SECURITY NUMBER 430-56-9207

PRESENT ADDRESS 3916 Berot Drive, Metairie, LA 70002
street city and state zip code

PERMANENT ADDRESS P.O. Box 88, Mansfield, LA 71052
street city and state zip code

PLACE OF BIRTH Mansfield, LA DATE OF BIRTH 9-3-66

NAME OF PARENT OR GUARDIAN Stephen & Peggy Mitchell

ADDRESS P.O. Box 88, Mansfield, LA 71052
street city and state zip code

TELEPHONE NUMBER (318) 872-4299

CONDITION OF GENERAL HEALTH Good

BRIEF STATEMENT OF WHY YOU CHOSE RADIOLOGIC TECHNOLOGY

I became acquainted with the x-ray department while working as a candy striper. I think the work will be interesting and I have a desire to help other people. It seems to be an expanding field with lots of specialty areas that are interesting and challenging.

B. PREVIOUS EMPLOYMENT

NAME OF EMPLOYER	TYPE OF WORK	DATES OF EMPLOYMENT
Eckerd Drugs	Part- time Sales person	8/85 - present
Doctor's Hospital	Candy Striper	6/84-8/84

Appendix E - Continued

C. ACADEMIC INFORMATION

COLLEGE OR UNIVERSITY	DATES OF ATTENDANCE	DEGREE EARNED
Southwestern	Sept. 1984-May 1985	-
University of New Orleans	Sept. 1985-May 1986	

	COURSE NAME	CREDIT HOURS	GRADE
NATURAL SCIENCES	Chemistry	8	A
	Biology	8	B
	Physics	8	C
MATHEMATICS	Algebra	3	C
	Trigonometry	3	C
HEALTH SCIENCES	Radiologic Technology	3	A
	Nursing	2	B

SEMESTER HOURS COMPLETED TOWARD DEGREE 64

COURSES TO BE COMPLETED IN THE SUMMER Medical Terminology-2 hrs.

OVERALL GPA 2.70 SCIENCE GPA 2.81

APPLICANT'S SIGNATURE

Appendix E - Continued

DATE OF APPLICATION 4-6-86

EXPECTED STARTING DATE 8-25-86

A. PERSONAL DATA

NAME IN FULL _____

TELEPHONE NUMBER 343-4760 SOCIAL SECURITY NUMBER 415-56-2787

PRESENT ADDRESS 3101 Highland Rd. Baton Rouge, LA 80802
street city and state zip code

PERMANENT ADDRESS 411 Johnson St. New Iberia, LA 70560
street city and state zip code

PLACE OF BIRTH New Iberia, LA DATE OF BIRTH 8-31-66

NAME OF PARENT OR GUARDIAN Joseph S. Gary

ADDRESS 411 Johnson Street New Iberia, LA 70560
street city and state zip code

TELEPHONE NUMBER (318) 672-8336

CONDITION OF GENERAL HEALTH Excellent

BRIEF STATEMENT OF WHY YOU CHOSE RADIOLOGIC TECHNOLOGY

The main reason I chose radiologic technology is because I have always wanted to help people. It offers an opportunity to interact with people from all walks of life. It will take determination to obtain a degree in this field of study and determination is what I have a lot of.

B. PREVIOUS EMPLOYMENT

NAME OF EMPLOYER	TYPE OF WORK	DATES OF EMPLOYMENT
James C. Davis, M.D.	Operated a computer terminal in patient billing.	June 85-Aug. 85
Burger King	Salesperson	June 84- Aug. 84

Appendix E - Continued

C. ACADEMIC INFORMATION

COLLEGE OR UNIVERSITY	DATES OF ATTENDANCE	DEGREE EARNED
Louisiana State University	8/84 - 5/86	-

	COURSE NAME	CREDIT HOURS	GRADE
NATURAL SCIENCES	Chemistry	4 - 4	B - B
	Zoology	4 - 4	A - B
	Physics	4 - 4	C - B
MATHEMATICS	Algebra	3	C
	Trigonometry	3	C
HEALTH SCIENCES	Nursing	2	B
	Medical Terminology	2	C

SEMESTER HOURS COMPLETED TOWARD DEGREE 62

COURSES TO BE COMPLETED IN THE SUMMER Radiologic Technology-3 hrs.

OVERALL GPA 2.67 SCIENCE GPA 2.88

APPLICANT'S SIGNATURE

Appendix E - Continued

DATE OF APPLICATION 4-20-86

EXPECTED STARTING DATE 8-25-86

A. PERSONAL DATA

NAME IN FULL _____

TELEPHONE NUMBER 443-2784 SOCIAL SECURITY NUMBER 439-96-1582

PRESENT ADDRESS 3750 McCann Drive, Alexandria, LA 71301
(street, city and state, zip code)

PERMANENT ADDRESS 3750 McCann Drive, Alexandria, LA 71301
(street, city and state, zip code)

PLACE OF BIRTH Alexandria, LA DATE OF BIRTH 2-14-65

NAME OF PARENT OR GUARDIAN Mr. & Mrs. J.D. Franklin

ADDRESS 3750 McCann Drive Alexandria, LA 71301
(street, city and state, zip code)

TELEPHONE NUMBER (318) 433-2784

CONDITION OF GENERAL HEALTH Good

BRIEF STATEMENT OF WHY YOU CHOSE RADIOLOGIC TECHNOLOGY

I wanted to be in a profession that would be serving other people. I just enjoy helping people any way I can. After looking at other areas in allied health, I decided on radiologic technology because I will be able to advance personally and educationally to suit my goals.

B. PREVIOUS EMPLOYMENT

NAME OF EMPLOYER	TYPE OF WORK	DATES OF EMPLOYMENT
Eckerd Drugs	Sales Clerk	Summer 1985
Louisiana Tech	Student Worker	Sept.-Dec. 1984
Alexandria Plasma Lab	Phlebotomist	8/86-present (Sat. only)

Appendix E - Continued

C. ACADEMIC INFORMATION

COLLEGE OR UNIVERSITY	DATES OF ATTENDANCE	DEGREE EARNED
Louisiana Tech	9/84-5/85	-
LSU-Alexandria	Presently attending	

	COURSE NAME	CREDIT HOURS	GRADE
NATURAL SCIENCES	Zoology	3 - 5	B - C
	Chemistry	4 - 4	C - B
	Physics	4 - 4	C - C
MATHEMATICS	College Algebra	3	B
	Trigonometry	3	C
HEALTH SCIENCES	Medical Terminology	2	B
	Radiologic Technology	3	B

SEMESTER HOURS COMPLETED TOWARD DEGREE 65 hours

COURSES TO BE COMPLETED IN THE SUMMER Psychology - 3 hrs.

OVERALL GPA 2.89 SCIENCE GPA 2.68

APPLICANT'S SIGNATURE

Appendix E - Continued

DATE OF APPLICATION 4-27-86

EXPECTED STARTING DATE 8-25-86

A. PERSONAL DATA

NAME IN FULL _____

TELEPHONE NUMBER 456-8122 SOCIAL SECURITY NUMBER 433-16-8177

PRESENT ADDRESS P.O. Box 7248 (street) Hammond, LA (city and state) 70943 (zip code)

PERMANENT ADDRESS 41 Magnolia Drive (street) Baton Rouge, LA (city and state) 70891 (zip code)

PLACE OF BIRTH Jena, LA DATE OF BIRTH 11-14-65

NAME OF PARENT OR GUARDIAN Mr. & Mrs. D.R. Hebert

ADDRESS 41 Magnolia Drive (street) Baton Rouge, LA (city and state) 70891 (zip code)

TELEPHONE NUMBER (504) 387-1556

CONDITION OF GENERAL HEALTH Very Good

BRIEF STATEMENT OF WHY YOU CHOSE RADIOLOGIC TECHNOLOGY

The radiologic technologist's career is based on helping the patient in any way possible and for the doctor's diagnosis. This is a fundamental job in treating the ill and I believe that doing this job the best I can will give me great satisfaction. I have always been interested in a career in the medical field.

B. PREVIOUS EMPLOYMENT

NAME OF EMPLOYER	TYPE OF WORK	DATES OF EMPLOYMENT
Safeway	Sacking Groceries	Week-ends Nov. 1984-May 1985
Woman's Hospital (Emergency Room)	Transporting Patients	June-Aug. 1985

Appendix E - Continued

C. ACADEMIC INFORMATION

COLLEGE OR UNIVERSITY	DATES OF ATTENDANCE	DEGREE EARNED
Southern	8-27-84 to 5-15-85	-
Southeastern	8-25-85 to present	-

	COURSE NAME	CREDIT HOURS	GRADE
NATURAL SCIENCES	Biology	(4) (4)	C/C
	Physics	(4) (4)	C/C
	Chemistry	(4) (4)	A/A
MATHEMATICS	General Algebra	3	B
	Trig	3	B
HEALTH SCIENCES	Allied Health Science	3	B
	Medical Term.	1	A

SEMESTER HOURS COMPLETED TOWARD DEGREE 63

COURSES TO BE COMPLETED IN THE SUMMER English-3 hrs.

OVERALL GPA 2.82 SCIENCE GPA 2.74

APPLICANT'S SIGNATURE

Appendix F

CANDIDATE EVALUATION II

After you have rated this candidate on their overall suitability for the professional phase of the radiologic technology program, please indicate your impression of the applicant on each of the following adjectives. (Please circle).

7.	Unfriendly	1	2	3	4	5	6	7	Friendly
8.	Decisive	1	2	3	4	5	6	7	Indecisive
9.	Cold	1	2	3	4	5	6	7	Warm
10.	Attractive	1	2	3	4	5	6	7	Unattractive
11.	Logical	1	2	3	4	5	6	7	Illogical
12.	Emotional	1	2	3	4	5	6	7	Unemotional
13.	Masculine	1	2	3	4	5	6	7	Feminine
14.	Assertive	1	2	3	4	5	6	7	Unassertive
15.	Unlikable	1	2	3	4	5	6	7	Likable
16.	Competitive	1	2	3	4	5	6	7	Noncompetitive
17.	Motivated	1	2	3	4	5	6	7	Unmotivated

Appendix F - Continued

CANDIDATE EVALUATION III

After you have completed all other ratings, think about the past performance of this applicant in the pre-professional phase of the radiologic technology program. This information is presented on the application form. After you have considered all the available information on the applicant, please answer the following questions about the applicant's past performance. (Please circle).

18. To what extent was the performance of this applicant due to high ability?

1	2	3	4	5	6	7
Very little			Moderately			Very much

19. To what extent was the performance of this applicant due to high effort?

1	2	3	4	5	6	7
Very little			Moderately			Very much

20. To what extent was the performance of this applicant due to good luck?

1	2	3	4	5	6	7
Very little			Moderately			Very much

21. To what extent was the performance of this applicant due to the easiness of the pre-professional program?

1	2	3	4	5	6	7
Very little			Moderately			Very much

Appendix G

INSTRUCTIONS FOR RATERS

This is an experiment on selective admission procedures. We have asked you to participate because we are considering the possibility of including student members on the admission committee for undergraduate programs in health sciences and we are trying to determine how good students are at evaluating applicants in comparison to existing members of the admission committee.

The packet you have received contains the materials you will need to complete this task. First, you will be asked to complete a personality inventory. The form lists a number of characteristics and you are asked to indicate on a scale from 1 to 7 how each of these characteristics describe you personally.

Second, materials have been prepared to simulate four applicants for admission to an undergraduate program in the health sciences, and you will be asked to evaluate each of the applicants. These applicants all meet the minimum requirements for admission and represent only four of the total number of qualified applicants who are competing for a limited number of spaces available in the program.

The packet you have received contains information of these four applicants and a number of different evaluation forms. After carefully reviewing all the materials, please complete the evaluation forms for each applicant. Notice that the rating scale ranges from 1 to 7. Mark your rating by circling the number from the scale which best fits your

Appendix G - Continued

rating of the applicant.

Each evaluation form contains specific instructions for completing the form. Please complete all the information that is requested on each of these forms. Are there any questions?

Appendix H

RESPONDENT INFORMATION

(1) Current major:

_____Dental Hygiene

_____Medical Technology

_____Nursing

_____Occupational Therapy

_____Radiologic Technology

_____Other (Please specify)

_____

(2) Classifications:

_____Freshman

_____Sophomore

_____Junior

_____Senior

_____Other (Please specify)

_____

(3) Age _____

(4) Sex: M F
(Please circle)

CURRICULUM VITAE

Nadia Bugg, Program Director and Associate
Professor of Radiologic Technology

B.S., R. T., University of Central Arkansas
M.A., Louisiana Tech University
Ph.D. Candidate, Louisiana State University

Date of Appointment: July 1, 1977

Research and Professional Development

Publication, Localizing Intraocular Foreign Bodies, Tennessee Society of Radiologic Technologists, Annual Meeting - 1967, Nashville, Tennessee.
Speaker; Education Opportunities, Northeast Louisiana Society of Radiologic Technologists, 1981, Monroe, Louisiana.
Speaker; Professional Licensure, Louisiana Society of Radiologic Technologists, 1982, Monroe, Louisiana.
Speaker; Occupational Licensure, Capital City Society of Radiologic Technologists, 1982, Baton Rouge, Louisiana.
Speaker; The Legislative Process, Southwestern Society of Radiologic Technologists, 1982, Lake Charles, Louisiana.
Speaker; Licensure Update, Norwela Society of Radiologic Technologists, 1983, Shreveport, Louisiana.
Speaker; State Licensure for Radiologic Technologists, Louisiana Society of Radiologic Technologists, 1983, Shreveport, Louisiana.
Speaker; Fundamentals of Radiography, Louisiana Chiropractic Assistants Association, 1983, Lafayette, Louisiana.
Speaker; LSRT - Direction '83, Louisiana Society of Radiologic Technologists, 1983, Lake Charles, Louisiana.
Speaker; Principles of Radiography, Louisiana Chiropractic Assistants Association, 1983, Baton Rouge, Louisiana.

Program Participant

4 - Annual Meetings, Association of University Radiologic Technologists
8 - Annual Meetings, American Society of Radiologic Technologists
1 - Institute, American Society of Radiologic Technologists
1 - Institute, Catholic Hospital Association
5 - Annual Meetings, Tennessee Society of Radiologic Technologists
2 - Annual Meetings, Mississippi Society of Radiologic Technologists
6 - Annual Meetings, Arkansas Society of Radiologic Technologists
6 - Educational Seminars - Arkansas Society of Radiologic Technologists
9 - Annual Meetings, Louisiana Society of Radiologic Technologists

8 - Educational Seminars - Louisiana Society of Radiologic Technologists
2 - Annual Meetings - American Educational Researchers Association

Memberships

American Registry of Radiologic Technologists
American Society of Radiologic Technologists
Louisiana Society of Radiologic Technologists
Northeast Louisiana Society of Radiologic Technologists
ASRT Continuing Education Program
American Educational Researchers Association

Professional Offices Held and Committees Served

1966-67 - President, Memphis Society of Radiologic Technologists
1967-68 - Secretary, Tennessee Society of Radiologic Technologists
1969-70 - Vice President, Tennessee Society of Radiologic Technologists
1971-72 - Convention Chairman, Arkansas Society of Radiologic Technologists
1972-73 - Secretary, Arkansas Society of Radiologic Technologists
1973-74 - Educational Seminar Coordinator, Arkansas Society of Radiologic Technologists
1974-75 - President, Little Rock Society of Radiologic Technologists
1975-76 - President, Arkansas Society of Radiologic Technologists
1976-77 - Executive Committee, Arkansas Society of Radiologic Technologists
1977-78 - Student Affairs Committee, Louisiana Society of Radiologic Technologists
1978-79 - Secretary, Louisiana Society of Radiologic Technologists
1981-82 - Seminar Program Chairman, Louisiana Society of Radiologic Technologists
1981-82 - President, Northeast Louisiana Society of Radiologic Technologists
1981-84 - Licensure Committee Chairman, Louisiana Society of Radiologic Technologists
1982-83 - Vice-President, Louisiana Society of Radiologic Technologists
1984-85 - President, Louisiana Society of Radiologic Technologists
1983-85 - Board of Directors, Association of University Radiologic Technologists
1986-87 - Executive Board Chairman, Louisiana Society of Radiologic Technologists

Honors

1981 - Northeast Louisiana University Teacher of the Year Award
1983 - Radiologic Technology Program Commendation for Academic Excellence, Louisiana Board of Regents
1985 - First Technologist licensed in Louisiana by the Radiologic Technology Board of Examiners - License No. 0001

1985 - National Graduate Student Research Seminar in Educational Administration

Special Assignments

1978-79 - Northeast Louisiana University Faculty Senate
1979-82 - Louisiana Board of Regents Task Force on Allied Health Education
1979-Present - Chi Beta Gamma Professional Radiologic Technology Fraternity - Advisor
1980-83 - Northeast Louisiana University Fraternities and Sororities Committee
1981-83 - Northeast Louisiana University Radiation Safety Committee
1981-83 - Northeast Louisiana University Faculty Senate
1981-84 - American Society of Radiologic Technologists Council on Continuing Education
1982-Present - Joint Review Committee on Education in Radiologic Technology Site Visitor
1983-84 - Consultant - McNeese State University Radiologic Technology Program
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DOCTORAL EXAMINATION AND DISSERTATION REPORT

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Major Field: Educational Administration

Title of Dissertation The Effect of Applicant Sex, Applicant Attractiveness, Rater Sex and Sex-Role Stereotype on The Evaluation of Applicants.

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